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MARINE FISHERIES ADVISORY COMMITTEE MEETING

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## P R O C E E D I N G S

(9:01 a.m.)

CHAIR FELLER: Our first order of business this morning is a report from the State Director's Meeting and Fisheries Commission. So which of you wants to go first? Bob's not here yet, so if you guys go first, hopefully he'll come and can go. Otherwise maybe we can pick him up later.

MS. LUKENS: Yeah.

CHAIR FELLER: Okay.

MR. DONALDSON: Thank you Madam Chair. I appreciate the opportunity to talk to everybody. I'm not really going to talk to everybody. I'm not really going to talk about anything different than I normally do.

Obviously the three commissions are very involved in data collection and that's still an important priority in the Gulf of Mexico, both the fishery -- independent fishery dependent data trying to make sure that we're providing consistent and compatible data for stock assessments in the Gulf of Mexico.

And we continue to work on securing

funding so we can continue to do those activities. Kind of on a positive note, we were able to secure some alternative funding to fund biological sampling and head boat sampling in the Gulf of Mexico through 2000, I think February of 2020. So it's being funded through a different source, but at least we're going to be able to collect that information.

You may recall that we had to stop doing bio sampling just because of level funding and increased costs. And we weren't able to do that, which had a potential huge impact on the assessments on the Gulf of Mexico. So that's good news.

We've also realized some increased funding in our jurisdictional fisheries program and bolstering that work, but also going to -- looking at alternative ways to -- or looking at funding some activities for some fishery independent and fishery depending work as well. So things are looking positive on the data collection front.

The other big issue is aquaculture. There is a lot of interest in the Gulf of Mexico

of moving both shellfish and finfish aquaculture forward. We're in our third year of putting out an rfp for shellfish aquaculture.

We've -- the previous two years we funded about \$800,000 worth of projects ranging from looking at improving the -- providing spat for commercial farming of oysters, to doing actually -- one of the projects we funded last year was a local community college in the panhandle of Florida to train fisherman and oystermen on how to do aquaculture and the business of aquaculture.

We brought our state directors up to Maine last year to look at the operations up there. And one of the things Sebastian told us is that you can have all the science and technology, but if you don't understand the business behind aquaculture, you're not going to be successful. Ultimately you've got to make money at it. So trying to train the next generation on the how to -- how to be successful in aquaculture.

Unfortunately hurricane Michael  
(Laughter) pretty much wiped out that college and



the project. We're expecting to get a request for an extension so they can get back on their feet. But prior to the storm it was proving to be fairly successful.

And then the other component of the aquaculture is regional pilots. The oyster stuff was specific to the Gulf of Mexico. This coming up year they actually expanded the funding to include the Pacific and the Atlantic as well.

So we're looking at taking a little different approach and looking at using the consortium to have longer- term projects instead of one-year projects, three- to five- year projects. And we're working on that fmp right now to get it -- to solicit proposals.

The other part is our regional pilot programs. That's both the Pacific, Gulf, and Atlantic. Last year was the first year we did that. In the Gulf we actually funded a clam project out of the University of Florida, funded USM to go through the permitting process, which with the recent court ruling became a lot easier, since the Gulf aquaculture fmp was deemed not necessary.

And then a demonstration project with Kampichi Farms to raise Almaco jack off the coast of Florida. So we're looking forward to the results of that. And then we'll be soliciting proposals for next year's funding as well.

And then, of course, I believe if you're from the Gulf of Mexico, you're obligated to mention red snapper. So I have to meet my legal obligations and mention it. You'll recall that last year through the Gulf Counsel each of the states received did an efp to manage recreational red snapper landings, red snapper activities.

At the recent council meeting early last month, the preliminary results showed that most of the states stayed within their quota, which was good. It shows that we are able to monitor those activities and not exceed the allocations.

Still, the big issue that needs to be resolved. Those efps actually go through 2020. After that we've got to come up with a longer-term solution. And the key to that is allocation, which is always an interesting

discussion and. And we're getting closer.

We haven't come agreement yet, but it seems like we're slowly making progress on that, and we'll continue to try and come to come consensus on that issue.

So, with that, I'll take any questions. Or do we want to do all three and then have questions? However you want to handle it, Madam Chairman.

CHAIR FELLER: Why don't we hear from Randy, and then we can turn it to questions.

MR. FISHER: First of all I'd like to thank Roger for my hangover. I just happen to have had (inaudible), by the way.

Each year at our annual meeting I present what Randy Fisher's top ten. So I'll walk through my top ten for 2018.

The first one, and there is no priority here, similar to what NMFS does, usually. The first one is get the new disaster grant approved. We were granted \$190 million this year, basically to solve a bunch of issues that happened in 2014-2016 on the west coast of Alaska.

So we are in the process now. The

grant has been shipped, basically, to Washington, D.C. So it's, I think NOLA grants now, two parts of it.

We anticipate that the money will come out in January. And then we'll start making direct payments to a number of fisheries up and down the west coast and a number of tribes.

Second. We got the initial phase of aquaculture contracts completed. And as Dave mentioned, each of the commissioners were given a have a million dollars to go out with rfps and do some pilot projects for aquaculture.

We anticipate that will be increasing. We're going to get another \$900,000 for the west coast to move forward with a number of agriculture activities. So we're in the process now of granting the first of the \$500,000 out.

Number three. Get something done with sea lions. There's a lot of discussion on the west coast about sea lions. It's a serious issue now. In the Willamette system alone, we're down to about 400 fish, in terms of winter seal head.

And the sea lions basically it's their dinner plate in some of their dinner plate in

some of the instances. So the House has passed a bill that would allow us to legally take some sea lions. So the Senate's involved in -- they have a bill also. So whether we will move through is a question now.

So Alaska Disaster Funds, number four, get them spent out. We were granted \$20 million to do some disaster relief planning in the Yukon River. Most of that money now has been spent out. That's been -- we're into the fifth year. So we can't extend that grant any further. So we're trying to get them go complete their billing to us so we can get that all done.

Number five. Continue the three commission lobbying efforts. Dave and Bob and I, with our law firms, go up on the hill and lobby. We will be doing that tomorrow, or this afternoon actually, in a little bit. And it's been very effective, because then instead of dealing with 27 states, they deal with the three of us. And they seem to be a very effective effort.

Number six. Complete the restoration phase of the Klamath. On the west coast we'll have a big juggernauts for all salmon fisheries

of the Klamath River stock. There are four dams on the Klamath River that were owned by Mr. Buffett.

Since that has been transferred to kind of a nonprofit group of folks, we're in the process of actually doing planning for restoration if those dams are removed. And they should be removed.

Number seven. Get a confidential data summary or data sharing agreement with California Department of Fish and Wildlife. We are having a difficult time getting a lot of the information out of California Department of Fish and Wildlife. So we're trying to come to some agreement with them. Most all of it is based on confidentiality and how they view confidential information.

Number eight. Contract for a hatchery and genetic management plans on the west coast. As you know, we have a large number of hatcheries. And some of these hatcheries -- NMFS was actually sued because we didn't have environmental impact statements on all of the hatcheries and the effects on the wild stocks.

So we contracted out. And we're in the process of completing those so that the hatchery systems can move forward and do their job.

Number nine. Continue the work on reducing whale entanglements. On the west coast, the most lucrative fishery is Dungeness crabs. Two years ago we had 78 entanglements with Humpback whales. This is a real concern because depending on water temperature, the whales come in.

Good news and bad news is there are more whales. That's the good news. The bad news is there's more whales. So it's a real problem to try and figure out how we're going to get around these entanglements and ensure that the crab fishery can continue.

Ten is continue to provide camera review services. On the west coast we have four people in my office that are looking at camera, instead of observer. So you, as a fisherman have your option of carrying cameras or having a live person on your boat, which will cost you around \$1,500 a day.

So we would like to continue that

process. The council is now looking at whether they want to go out with a third party, which would end up costing more than what we do now. So those are my top ten. And I'd be happy to answer any questions.

CHAIR FELLER: Does anybody have any questions? Mike and then Joe.

MR. OKONIEWSKI: Sorry to do this to you with a hangover but, actually it's pretty simple I think. Does each of the hatcheries have to do a separate EIS, or can they combine them, or how does that work?

MR. FISHER: They've been combining them by system.

MR. OKONIEWSKI: Okay. That's it.

MR. SCHUMACKER: Thanks Randy. Joe Schumacker. The pinniped issue. The tribes have been notably making noise about this issue for some time here. And we appreciate your thoughts on this. And down the road do you see any further movement on continuing this culling of the population beyond what we've got at this point?

MR. FISHER: Well, I've been doing this



for about 40 years. And this is the first time I think that we've come close to getting the ability to legally take them. So the key now is in the Senate.

And whether or not we just changed anything in terms of the House, I don't know whether they will -- we're going to continue to move forward. We're going to push on it heavily, because we're losing fish now to the point where winter steel head are going to be gone.

MR. SCHUMACKER: Thank you Randy. Yeah, the issue as many people know is that when the fish are impounded and trained behind these areas, they become a buffet for these sea lions in particular. And it's just a pressing issue that's got to be addressed. And we appreciate your work. Thank you Randy.

CHAIR FELLER: I have Ray and then Richard.

MR. ESPINOZA: I wanted to ask you, specifically, about the, as a learning experience, since I'm assuming you guys have a bit more experience in this than we do with the recovery funds.

And if the way that you guys are managing these funds as direct payments to the fishing community, if that's something that is a common practice, as well as -- and of course we're going to continue this conversation later on.

But I wanted to just ask you about that, if that's something that is kind of the norm.

MR. FISHER: Yeah, it's interesting. Paul and I have talked about this before. So disaster relief money, meaning if you look at it now, we're paying people that the disaster happened in 2014. I mean, this is 2018 folks. This is taking way too long, number one.

Number two, it's all political basically, if you really look at the process. Number three now, what we've heard is it will only be as -- they don't like direct payments, for the first time in all of our experience. And we've done four disasters now on the west coast and Alaska.

And most all of those have been direct payments to people. And we have done it because

we do it quickly. And the idea is to get the money back into the community, not somewhere else. So almost all of the money that we've done in the past has been direct payments. Some research, but mostly direct payments.

MR. ESPINOZA: So mostly, of course, the current funding is to support the fisheries. And so there has been research related to fisheries research. And mostly it's really to support the fishing industry, be that to the community or the individual. Okay. Thank you.

I'm just trying to take this as a learning experience. This is the first time that the Caribbean has received funding like this. And we want to make sure that these funds are appropriately, and not used to be diverted for things that are not meant.

CHAIR FELLER: Did you want to comment on that?

CHAIR DONALDSON: Yeah, to that point.

CHAIR FELLER: Okay.

MR. DONALDSON: So, we dealt with some -- when Hurricane Katrina hit, we got disaster money as well. We operate a little different

than Randy in that we distributed to the states.  
And there was two parts to it.

There was resource recovery and getting the debris and getting the vessels out of the water and whatnot. And then there was a direct payment component to it as well, so to get money into the fishermen, into the communities.

And, again, they used the Commission because it was much, much quicker. So we've had -- it's a little different, but still the same idea of getting money to fisherman.

MR. ESPINOZA: Okay. Thank you.  
That's kind of a -- so I think we have learned the process, and the Federal Government has learned from Katrina somewhat because FEMA actually paid for a lot of the removal of the vessels and working with the Coast Guard in those states. And that's been done.

So the recovery funds for Puerto Rico and the SVI that we're looking at should really be to address some of the issues within the fisheries and the resources that were really damaged and impacted. Thank you.

CHAIR FELLER: So we're joined by Bob

Beal. Welcome.

MR. BEAL: Thank you Erika.

CHAIR FELLER: Good to see you. So I'm going to actually pause on questions for a second and give Bob a chance to give the report from the Atlantic States Commission. And then we can go back and finish up with questions.

There is a lot of feedback on the microphones, if you guys have noticed. Step one, hit the minus button a little bit, turn the volume down, and maybe back off a little bit from it. And maybe that will go away.

MR. BEAL: Good morning. Thank you Erika. Sorry I'm a few minutes late. Dave and Randy told me the meeting started at 10:00 so they would have more time to talk.

(Laughter) They wanted more time.

Randy has usually got a top ten.

I've only got a

Top five from the east coast, so I'll hit those pretty quickly and then happy to answer any questions.

One of the big things going on the east coast cost, I think a lot of folks may have heard

about it, is the right whale issue. The right whale are in rough shape.

Only 440 animals are still in the population, 150 more or less are females, and 17 mortalities of right whale in 2017. There have been three this year. And there is indication that a lot of those mortalities are associated with fishing gear, fixed gear, U.S. gear, Canadian gear. There are some ship strike issues also.

So ASMOC manages the American Lobster Fishery, which is a half a billion dollar industry right off the boat. So it's a pretty valuable fishery. But there is some indication that there's a lot of interaction between lobster gear and right whale.

So working with NOLA fisheries through the take- reduction-team process to sort out what to do with the right whales, how we can modify lobster gear and the lobster fishery to reduce the impacts on those animals.

The other thing I didn't mention up front is that, unfortunately, there have been zero calves over the last couple of years as

well. So you've got animals coming out of the population, no animals going in. It's a pretty dire situation.

So we're trying to figure out how to balance the needs of a really valuable fishery that's critical for some of the coastal economies up and down the coast, especially in New England, and the needs of the endangered right whale. So it's a tough issue. It's going to be a tough one for the remainder of this year, probably into next year -- or definitely into next year, as well. So we're going to have to figure that out.

The other issue associated with lobster fishing is the herring quotas which Atlantic Herring is primary source of bait for the lobster fishery. The hearing quotas will be cut going into next year about 75 percent. So we're trying to sort that out.

And there's also some indication that the water temperature changes in southern New England are kind of extending up through the southern Gulf of Maine. And the productivity of the lobster fishery may be going down.

So the managers are trying to massage

all these different problems into one, hopefully, elegant solution, which is we need to reduce our interactions with whales. We need to -- the reality of significantly reduced bait availability, and the potential for some climate change impacts on the stock.

So we're trying to balance all those out. It's going to a very tough issue on that fishery. And we're going to have to see where we go.

Dave or Randy may have talked about this, but the next issue on the east coast is the recalibrated MRIP data. ASMOC obviously manages a number of recreationally important species with the councils.

And we're working through striped bass and summer flounder assessments right now. We're going to have a peer review in a couple of weeks on those assessments. And they will be sort of the test case on the east coast anyway on what the new recalibrated MRIP numbers do to new stock assessments for two recreationally important species.

So, we're going to use those two species



as kind of a guinea pig. We'll see what it does. I think the early indication is that the models aren't blowing up. The models still work with the new MRIP data. And it seems to have, obviously, a significant effect on the overall scale of the population. It seems to be scaling everything up.

A number of the trends are staying the same in the population, which is good news. Everything just -- we just ended up with more catch in the stream historically. So the numbers seem to be working out, but it does significantly impact the overall estimates and the reference points and other things for recreational fisheries.

And obviously that triggers reallocation questions now, which are always tough and difficult for the managers to work with.

As an example, with summer flounder 60 percent goes to commercial, 40 percent to recreational, if that. With the new MRIP number, those ratios may need to change. We want to maintain the historic allocation.

So MRIP will be incorporating those new numbers. It will be a big project on the east coast.

Climate change, as I mentioned briefly with lobster, is affecting essentially everything we do along the east coast. Things are changing pretty quickly. Animals are moving to where they weren't in the past. Productivity is changing.

We're trying to find a way since, as you guys all know, the east coast is a bit unique. We've got three management councils. We've got ASMFC. How do the four management entities along the east coast work together a little bit better to deal with climate change and not trip over each other when animals move from one jurisdiction to the other.

There are some examples of fish moving from off- shore to in-shore, obviously moving up the coast and kind of when those animals change jurisdiction or primary residency, we kind of -- the management probably needs to shift with it. And we're still -- it is hard to change management authority for these species. And we're slowly doing that. Cobia is an example of

-- the Cobia management was moved from South London Council to ASMFC. And it worked pretty well, but it's not an easy thing to do.

Number four of my top five is off-shore energy. There's a lot of off-shore energy activity going on on the east coast, mostly up in the southern New England area right now. The states are very engaged in that process. ASMFC is on the periphery a little bit, but there is the potential for some of the citing and buildout of these off-shore energy projects to impact a lot of important fishing grounds.

So we're trying to balance -- again, strike a balance with the fishermen's needs and where they historically fish and where the leases are for the wind power companies that are initiating construction relatively soon it seems like. So we're trying to balance that out.

Number five on my top five is the Secretary of Commerce support for ASMFC. There's still some uncertainty in the ASMFC process as far as if a state is out of compliance with the interstate fisher management plan and the ASMFC recommends to the secretary that action be taken

to motivate that state to come back into compliance, we're kind of uncertain how the secretary would react to those recommendations from ASMFC. So that's, obviously, that's the key and sort of motivation tool in ASMFC authority for management, for interstate management down the east coast.

So if the secretary may or may not agree with ASMFC, that uncertainty really changes how the states along the east coast have to manage their fish up and down the coast.

Again, sorry I was late Erika, but those are my quick top five of the highlights along the east coast right now.

CHAIR FELLER: Great. Thank you. I want to go back to -- I had Richard had a question earlier. So we'll go back to him and then Mike and then Joe.

MR. YAMADA: My question is to Randy. Regarding the whale entanglement with crab fishing gear, what is the -- are there any approaches that have been brought forward that you are researching?

MR. FISHER: Yeah. There have been a

couple. We're trying to test out a number of things. Number one is there is actually some crab pots that are used in New Zealand where they don't even have ropes. What they do is they go over with them and they hit a little electronic pulse. And then a blows up a baffle and the pots come up. They are very expensive. I don't think it would work in crab gear on the west coast because our pots are usually a little bit bigger and heavier. So they were looking at that.

They are looking at trying to figure out whether rope color makes a difference. So there's a number of things that people are looking at. And each of the states have groups of folks, fisherman that are involved in trying to come up with solutions. So there's no silver bullet, long story short.

CHAIR FELLER: Mike.

MR. OKONIEWSKI: Let me first go on record about the sea lion issue. I've lived around the Columbia River system of tributaries and whatnot for the last 31 years. I had a gillnet permit of my own back in 1986-87.

And the number of sea lions we're

seeing there now is literally, I would guess, three times as much as what we used to see to where they are literally covering the floats and the jetties and whatnot.

But I think they are at carrying capacity or beyond. And the amount of damage they are causing to endangered species and whatnot is a real problem. I think a lot of people that are removed from the situation have a different idea, that we're just attempting to be greedy and the sea lions are getting a few fish and whatnot.

I watched on the spring chinook run that came up river. One in particular was a pretty successful hunter. I watched him catch six of these fish in one hour. Quite a spectacle actually the way they do it.

But now they're going after sturgeon. They're going into some of the streams, actually swimming up toward the hatcheries, or as far as they can get and taking fish in these hatchery streams that are maybe 50 feet wide at the most, Big Creek being one down there by Astoria.

So it is a big problem. And it's not

that I like to just go out and slaughter things, which I don't. But I think you have to understand the dimension of the problem in order to appreciate it. And I just want to get that on the record.

Second piece is for David. On these efps that you mentioned on the state level, are they pretty much all the same format, or does each state kind of run their own program and come up with a different idea?

MR. DONALDSON: They are similarities, but they are geared to each of the states for their unique conditions within their states. So Richard Code in his presentation talked about the state data collection programs for red snapper. Each of those are a little different because of the variety of different access points, the number of anglers, and whatnot.

So it's similar, but it's similar but different.

CHAIR FELLER: Joe, I think you'll be the last question and we'll move on to our next agenda item.

MR. SCHUMACKER: Thank you Madame

Chair. And I just want to echo Mike's comments again on the pinnipeds and thank you kindly. And Richard's question earlier keyed in on mine as well.

The whale entanglement issue right now is a critical looming issue for two of the most valuable fisheries that we have on the east and west coasts. The lobster fishery is probably being impacted a little bit quicker than the Dungeness crab fishery on the west coast is at this point. But it's coming.

And the solutions that I've seen to date that Richard was asking about and that Randy alluded to are not effective. They will not work at this point.

So we're seeing various things from, as you noted, the acoustic tag balloons that sunken gear pops to the surface will not work. Not for the scale of the Dungeness crab fishery. I don't know about the lobster fishery. I'm getting a shake of the head from Bob.

I've also heard of things like maybe the old finger traps, woven finger traps that you stick your finger in. They want to put lines



with the finger trap device and have them break away.

So this is what we're down to, is this kind of solution for a problem for a billion dollar fishery, when we had the coasts together, the two coasts. So we need to address this. And this needs to be addressed rapidly in order to save these fisheries and these people.

And I don't know if this committee can directly get into this a little further. I would suggest potentially some briefings from NOAA on this, at least getting folks better educated on it. This is coming fast and hard.

And I've been participating in these meetings from the -- as a tribal representative in Washington State. And we are frightened, literally, by what's coming here.

We do not want to see whales entangled. We think there are solutions potentially out there, but they are not being brought forward right now in a real positive manner that I see.

Thank you.

CHAIR FELLER: Thanks Joe. Thanks guys. Much appreciated. So we'll turn it over

to Paul Doremus.

MS. LUKENS: Who is going to go up to the podium.

CHAIR FELLER: Who is going to go up to the podium, excellent, and tell us about the NOAA fisheries budget outlook and administrative update.

DR. DOREMUS: Good Morning everybody. It's great to see you all this morning. Sorry I missed the proceeding yesterday. I did get a great report out from folks and was really pleased to hear about some of the discussion and look forward to following up on a number of the issues that were raised. And it was wonderful to see most of you last night at the Legal Seafood's reception. Thanks again to Roger for that. It was a fabulous event and a good prelude to an evening of watching election results. At least one of us had a good warm up for that.

So another day, another election. I'm covering the budget outlook administrative update here for the next few years. Electoral results are certainly on everybody's mind. And in the face of everything that kind of played out across

the Nation yesterday, I will make only two observations from the vantage point of our work.

One observation is we are in a long-term line of business. We need to keep our eye on the long ball and to focus on the issues that the Nation needs to address relative to our mission mandates. And that isn't going to really change materially. The reality of the world that we're trying to address, the issues that we're trying to address, are going to need to be addressed now and for years to come. And we need to keep emphasizing the payoff to our constituents, to the Nation in direct and indirect ways. In economic ways and environmental ways, and in terms of overall public health and welfare.

So long ball is observation number one. And observation number two, and one of the great benefits I think of working in this line of business, fisheries for the most part has always been supported on a bipartisan basis. What we do is rooted in, for the most part, highly regarded, statutory requirements drivers.

People will argue and continue to argue

about the relative merits of different provisions at Magnuson, ways that we could better improve our Endangered Species Act implementation, and likewise MMPA.

But those requirements, we'll march forward and we will figure out ways to handle our responsibilities in whatever policy context and whatever budget context we have.

So I'm going to cover some of the issues that are here today in front of us. And I'll use a different way to advance slides. There we go. It doesn't matter. I got it.

I do want to emphasize that this is really a budget presentation. I've got a little bit of emphasis here on aquaculture which is one of our major initiatives that I'll talk about. We do have, after the break, an opportunity to talk at greater length. David or Brian is here from the aquaculture program office. Today Michael Rubino is up in Baltimore at a fish 2.0 event, which is a very interesting, highly innovative effort to link entrepreneurs in the sustainable seafood space generally, aquaculture but more broadly with investors and sort of

broker entrepreneurial interactions with the investment community. I'll be up there tomorrow. This is one of the ways we're trying to work creatively to link and provide better pathways from science through to commercial enterprises in the U.S. And that's a very interesting endeavor. So Michael's up there talking to those folks today. We have the benefit of David or Brian. And we'll get into program details in that second event, or second presentation.

I'm going to cover a few aspect of where we are in the net with our budget reality. We are always keeping our ball on multiple budget years, minimum three. We just wound out FY '18 and are still under, in 2019. While some appropriations have been granted, ours has not. We're still under a continuing resolution until December 7. We're on that later.

We have budget proposals in the works under consideration by the administration for FY '20 and are already in internal discussions for 21. Again, long term line of business. We've got to be thinking multiple years ahead.

On the 19 budget, the President's

budget went in on time. First time in a bit. We have Congressional marks. I will point to those. We have our CJ, our continuing resolution for our CJS prob until December 7. We could take a poll on what will happen on December 7. Another shut down moment. I doubt that will happen, but I think most people would probably expect an additional continuing resolution.

These things -- we've become accustomed to operating under CRs. It allows us to operate at last year's levels. It gives us limited flexibility. Can't do new starts. Contract activity and grants can go forward. So it's sort of -- it's quite literally is continuity of operations. While it is better than absorbing budget reductions, it still kind of puts us in hold mode, which for some of our initiatives, that's a little bit more difficult. But not anything that we haven't dealt with before.

In '18 we were in continuing resolution for quite a period of time. And in some years we've had CRs for pretty much the entire year. So nothing that we haven't dealt with before.

This depiction here really gives you a

sense, a kind of a flavor of where we are in FY '18 under major components of our funding lines. And then that's sort of the reference point, our last executed year in FY '19.

You see the reality here that we have been facing under this current administration, but we have actually been facing in progressively starker ways over time for a number of years now, where there's been an increasingly large gulf between the President's budget and the inactive budget by Congress.

It used to be the reverse up until around FY '10 where we would have larger budgets proposed than were enacted. Or the other way around, I'm sorry. And now we have the reverse. That reflects a number of things, including the Congress' decision to forego earmarks and a number of other factors.

But right now we're looking at a Pres bud proposal in '19 at 837.3. And House and Senate marks with slight variations having to do with how CTSI monitoring, catch shares and a couple of things are different between the House and Senate marks.

But for the most part, like '18, the message from the House and the Senate for FY '19 so far in the marks, has been largely rejecting the reductions that were proposed in '18 and built on in '19 in the President's budget. So that's been the pattern set to date. And we will see where Congress goes with this. I think for the most part the general expectation is that we will see an outcome in '19 somewhat like '18, or a continuing resolution at '18's level of 1.014.

A lot to work with there. And I think the major message, as we have had, and you've heard from me for a number of years now, major message is continued budget uncertainty. And we not only have to figure out how to keep our operations going under this kind of environment, but also how to respond to new initiatives, this being one of them.

And there has been some direct Congressional attention to our aquaculture line. We'll provide some details here about that.

But I do want to emphasize one thing right at the outset here. While this is a focus on aquaculture funding, and aquaculture is a



major component of our overall initiative that we're going to be looking at, and it is well captured, in fact, in the department's strategic plan.

Noted here it's a very concise strategic plan. It's a very high level strategic plan, and it lays out some major objectives for NOAA, this being one of them.

I want to emphasize that this is in the context of broader strategic thinking and program development in the administration around what you will largely hear language around Blue Economy. Admiral Gallaudet is on the road all the time. He's conducting listening sessions, talking to people about Blue Economy.

A major piece of that is seafood production. Other pieces include maritime transportation, tourism and recreation, ocean exploration, and other areas. But the major one and the one that is well recognized in the strategic plan really goes under the broad label, I think, of enhancing seafood production in the United States.

As a program initiative, it is about

U.S. seafood production. Aquaculture is the area where we are putting a lot of emphasis, because we think the opportunity to change things is substantial. And we need to look at opportunities for greater growth in the production of U.S. seafood, given ultimately from a supply demand point of view as significantly balanced both nationally and globally in the production of seafood relative to demand.

We can get a little bit more efficient about how we do things with our wild capture fisheries. And that's a major emphasis of our seafood production initiative. Looking at ways to improve the regulatory environment, improve utilization of harvested species, and looking at ways to broaden, perhaps through looking at underutilized species and other kinds of initiatives, to broaden the market potential for sustainable harvested wild seafood.

Another component of our overall seafood production initiative is on trade, which redounds to the benefit of all seafood products, farmed or wild harvest largely dealing with our market access, technical barriers to trade, areas

that we handle on a routine basis with our colleagues, elsewhere in the department, in ITA, and also in the U.S. Trade Representatives Office.

But ultimately to really, in the eyes of the secretary to address long term seafood trade deficit issues, major focus of his on the economics of all of this, there are other economic dimensions as well: the diversification of our ocean-dependent coastal economies being a significant one.

There are also substantial environmental dimensions, if you look at food production systems and the environmental consequences of alternative forms of protein production. A very compelling case for seafood. A very compelling case for aquaculture, as well as wild harvest sustainable managed.

And there is a, we don't talk about it much around here, but we are increasingly so noting the public health and nutrition dimensions of seafood as well. So all of this is part of the rationale for why we are continuing to emphasize and provide a more holistic strategy

for U.S. seafood production with a particular emphasis on aquaculture as called out in the strategic plan.

So on the budget side what actually is represented here is what you can see in the budget with aquaculture label on it. This is the budget view. And the main thing I'll emphasize here is where the growth point has been from '17 to '18. The two major lines where you see aquaculture in our budget, one is in fisheries and one is on OAR under sea grant, executed at \$9, \$9.5. And both programs in FY '17.

The FY '18 budget was proposed relatively level for fisheries in the sea grant budget in FY '18 and FY '19 was proposed by the President as one of many major grant programs that were proposed for elimination. It was executed in FY '18 at \$11,500,000, a nice increase, over \$9.5 in '17.

But the House and the Senate increased spending in FY '18 for us pretty substantially, at \$5.7 million and with specific direction on where to put that funding, directing us to spend up to \$10 million on shellfish survival and

growth rates, as well as classifying preserving natural genetic variation of shellfish.

And then the second major area of direction was highlighted by our commission directors because some of that has been negotiated and run through those three regional efforts: \$2.5 million on regional pilot programs and \$5 million on off-bottom oyster production.

So we are managing these increases to Congressional expectations. It limits our flexibility on where we can deploy new resources. I'll come back to that in a minute. But this is what you see in the budget.

There are other pieces. And this next slide kind of shows you a little bit more holistic look, both other time and with the different components of our budget. So there are other pieces of fisheries budget that are directed toward Aquaculture, then just the Aquaculture program line.

So as you see, fisheries in the first two columns really of our operations research facilities spending and our S-K grants now are a combination of \$21.5 and \$3.5 for S-K. That is a

combination of the budget that you saw on the previous page plus the approximately \$6.5 million in our core fisheries lines is directed to our laboratories and used for Aquaculture purposes. That's been fairly constant over a long period of time.

And where you see -- so you see some growth that came out of the increase of \$5.7 for our Aquaculture program directed as noted. There is also a pretty substantial increase over time here in the resources that the Sea Grant Program under OAR have been putting into Aquaculture. And we've got some additional detail on that, and some very thorough detail in the backup notes if you're interested in areas where that's going.

But that has proved to be a really substantial component of our ability to get resources through the university networks that Sea Grant represents, but also with match and very often in collaboration with industry focusing on near-to-market commercialization types of projects. So a little bit more detail on that coming up.

Stepping back and looking at the total

picture, a lot of what we are asked to do is very heavily focused on the centerpiece of our U.S. Aquaculture portfolio at this point in time, which is shellfish, and largely at the direction of Congress: shellfish survival of growth rates; genetic variation; a lot of work of oyster Aquaculture; research restoration; efforts to address long-term environmental factors; how to make oyster populations more disease resistant, more tolerant of changes; and ocean acidification and other kinds of conditions.

We are looking at including the work funded with the commissions, as well as through Sea Grant, at regional pilots for sustainable aquaculture development, an area that we think needs to be emphasized and expanded.

Some of you participated in a consortium on ocean leadership discussion about off-shore aquaculture potential. And one of the major messages coming out of that was the benefit of pushing harder on regional pilots and sustainable aquaculture.

And we also need and have some resources that have been made available, but not

much in terms of growth to shore up our internal laboratory efforts, centered largely in Milford, Connecticut which to date in the past it supported a little bit of finfish, but to date has dominantly been, and today is still dominantly oriented around shellfish support in the northeast.

And likewise in Manchester a more diverse Manchester, Washington, a more diversified aquaculture research operation there that includes shellfish, as well as some very promising finfish work, such as sablefish, which I know (inaudible) is very familiar with, among others.

We also need to keep in mind, and this is something that we are in discussions routinely with our appropriations staff about. While we are very, very grateful for the increased attention in Congress to aquaculture, and while we find the direction that they are providing very helpful, in the end for long-term strategic development, we would like to have a little bit more flexibility with the resources that Congress does allocate toward us.



One of the areas where we have heard over and over again, from industry about how beneficial it is regional siting that is done out of the National Ocean Service in the Beaufort lab. James Morris is our lead scientist there. And that type of work is really, really central to our ability to move forward intelligently and sustainably on the aquaculture front. Right now it is quite resource constrained.

Other areas, very promising areas: kelp, finfish production. These are areas that, in my view, are significantly underfunded and we hope to be able to attend to those further in the future.

So where we are today with our new funds. I already discussed from our commission directors the \$4.5 million that is being executed toward regional shellfish consortia and pilots/partnerships.

This \$1.6 million is the small augmentation that we have for our internal fisheries laboratories. That is largely shoring up base resources that have been under significant stress and strain over the long term.

When you look at our laboratory budgets as a whole, we have barely been able to keep up with inflation. And in the aquaculture portfolio, as well as elsewhere, we are seeing long term pressure on our staff from the inability to keep up with the rising cost of doing business. So the \$1.6 million goes a long way towards that problem.

Small increase in NOS for Competitive Research Awards. The other piece, in addition to the siting work that they do, NOS is our center of excellence on harmful algal bloom and very, very relevant on, obviously, to the shellfish industry and other aspects of coastal management. And more on that later. And a slight increase in our Sea Grant aquaculture research award.

So, some quick detail. Not to push too much on the budget issues, but bottom line message here is we are trying to use every tool that we have available to us to try to -- this is sort of working within budget constraints approach where we are using tools like our Saltonstall-Kennedy Grant Program, defining a priory area there.

For aquaculture we have done that for several years now. \$3.5 million to 13 projects in FY '18 under that program. The competitive research awards in NOS are largely calling for algal bloom related \$2.7 to four projects there.

The real center piece of our external grant program sustained a highly structure combination of research and extension, and deeply rooted in regional needs through our Sea Grant marine aquaculture research awards, a very healthy and very impactful program.

And then we have some small resources, small business innovation research grant program. It's a requirement in Congress many of you might be familiar with to set aside a percent of -- a small percent of every R&D budget. And we are putting a small amount of SBIR award into the aquaculture domain.

So quick slides on each of these provides some detail. The main thing there, if you want to look at the project portfolio, we have links here that you can navigate to through these slides on the Saltonstall-Kennedy Grant Program and where those resources have been

directed.

The priority areas that we focused there on, in consultation with our regional councils, commission, and others are technology development and transfer.

Tools needed for management, a substantial aspect of the research enterprise is directed toward what we often call tools for rules. Reference made earlier, that Bob was talking about, both the Atlantic right whales and entanglement issues, one example. And also tools that lead to regulatory efficiency. So those are an important set of projects under S-K.

There are a whole program history around S-K. This is one of the priority areas under Saltonstall-Kennedy. And it's always a Congressional decision how much of this program to use for basically offsetting our core operations research facilities budget and how much to make available for external grants. So that's an uncertain budget line for us over time.

The competitive research awards in NOS are really harmful algal bloom centered. Again link. You can learn about those shellfish

interests. I care a lot about this for that and other reasons.

And on the OAR side, \$11 million to 22 projects in FY '18 following on \$9.3 million in '17 on 32 projects. Just a few pulled out here, microbial safety, market acceptance, industry partnerships looking at demand.

This is a diverse set of projects dealing with core research issues, as well as market development considerations that are being emphasized under Sea Grant's priorities.

We have a great collaboration in fisheries with Sea Grant. I look at this from an NOAA-wide vantage point. And we've got a fabulous team at Sea Grant. Kola Garber's back here as the Sea Grant deputy who we see on a routine basis and works very closely with our program office team, David, Michael, and others to define where the needs are to get input from industry and to structure the program in a way that has the greatest impact on commercial potential for aquaculture in the U.S.

The priority areas in the 2018 initiative includes supporting the development of

merging systems or technologies that would advance aquaculture in the U.S., very broad on the technology systems side.

Second, developing and implementing actionable methods of communicating accurate signs-based information about the benefits and risks of marine aquaculture to public, very significant when we talk to industry, why is aquaculture investment not more robust? They say (inaudible).

Unpredictable regulatory environment and social acceptable issues. This priority area in the Sea Grant program is taking on the latter.

And then third increasing the resiliency of aquaculture systems to natural hazards and changing conditions. Everybody wants to understand how to sustainably manage aquaculture operations in a very active and constantly changing ocean environment. And this research propriety was designed for that reason.

So we're anticipating -- this is an incredibly well supported program in Congress. And we are anticipating continued support for aquaculture innovation of that type.

I highly recommending looking at the award profile. There is also very useful information in the deck, in backup slides for the -- to give you a sense of the portfolio of Sea Grant funds and how they've been allocated.

Lastly, SBIR. These are a couple examples from the '17-'18 award that have not come out yet. And we will expect an approach somewhat similar to '17.

There is a three-phase approach to SBIR. I won't get into the details of that. Overall, it's an effective program. It's a small piece of what we've been able to direct toward aquaculture. Again, very, very centered on pathway to commercialization.

Phase I is essentially demonstrating the technology. Phase II is really evaluating commercialization potential. And Phase III is getting over that lab-to-marketplace kind of transition. A well-developed program for that the entirety of the Federal Government uses.

So I did want to emphasize one last note before shifting to broader budget themes in Sea Grant. Sea Grant does a fabulous job of

tracking their impacts. And I just wanted to note here, again, given this focus on funding, lowering the R&D barrier to investment in aquaculture and funding transition to operations. Sea Grant has estimated a \$78 million economic impact to date from these initial investments supporting over 792 businesses and 1,387 jobs.

So this is not just the value of the grant. It's the impact of the grantees on businesses that have full supply chain impacts and they cast out with these kinds of numbers. And it's well worth considering the sort of full holistic look at the markets that we are affecting through this type of development work.

So the last few notes before turning it open coming into this, just earlier in October. This is carrying on the theme of continued compression of domestic, nondefense discretionary spending throughout the Administration asking all Cabinet agencies to be prepared for an additional five percent cut.

This all sets the context for FY '20. Look at the President's budgets in '18, '19 built on '18. You can expect '20 to build on '19. It



will be a similar kind of direction. And we will see, once we have '19 outcome from the Hill, we'll see how '20 is received and what kind of programmatic messages do and don't stick in that whole process.

We are anticipating whatever the budget reality that we face, continue to focus on seafood production, aquaculture being a major piece of that, but not the only piece. We can always -- we always strive to be more effective with the resources that we do have.

This administration is focused under our NOAA leadership very heavily, on blue economy. There's a very, very strong emphasis there in our approach to innovation technology development in particular, and toward partnership- based methods for collaborating with nongovernmental sectors, environmental NGOs, other sources of research expertise in academia and in the private nonprofit research enterprises such as our key strategic partners like Woods Hole Oceanographic Institute and Scripps, as well as stronger modes of collaborating with industry.

We are also deeply committed to

providing a predictable regulatory environment for aquaculture. Our long-term vision is to have sustainably associated with U.S. Aquaculture production, just as it is associated our wild capture fisheries.

We have, after many, many years of refining Magnuson and figuring out how best to live up to the complex reality of science-based decision-making and raw-captured industry, we have developed a pretty effective way of doing business.

And we would like to get on the same kind of footing for U.S. aquaculture production. And that's going to require a combination of a predictable regulatory environment and stronger science support.

Ultimately we would be in a better place. There is some reference to the court decision in Louisiana. We would be in a better place supporting aquaculture outside of Magnuson. The advancing equality and understanding of American Aquaculture Act introduced by Wicker and Rubio in the Senate and a bipartisan introduction in the House as well is a promising piece of

legislation. It is a start for discussions. We are hoping that it gets reintroduced and is opened up to further discussions about how to build a level of bipartisan support for aquaculture, much like we have for our wild capture fisheries.

So that's where I will end for now. We hope that that is at least a basis for a glimmer of hope in our world for bipartisan action on issues of relevance to our core mission requirements in long term sustainable seafood production in the United States.

And we will do what we can to create an environment for that sort of discussion. And all of you individually and collectively can contribute to that as well.

So I will leave it there. More on aquaculture later, on the broad budget environment. I'd be happy to take some questions.

MR. OKONIEWSKI: Thank you Paul. A good presentation. I couldn't get to day two on the presentations, but I assume that sooner or later I'll be able to find this on your website.

DR. DOREMUS: Heidi is working on it right now. It's more under the table. Yes. We will always make this material available. It should be there.

MR. OKONIEWSKI: It's still stick on day one. And I'm sure Heidi will get it fixed.

DR. DOREMUS: Sorry about that. But yes, all this information is there.

MR. OKONIEWSKI: I really I had been pushing that many times. And I can't get it on. It might be my computer, but it could be the Google Chrome I don't have. And I can't get it without my administrator doing it.

Anyway, the point I made yesterday, I can't remember quite where, but Sebastian reminded me of it last night. And it's something that, you know, it inspires hope when you see something like Blue Economy and the rest of this playing out in a balanced sense of sustainability and conservation and the economic value you can get out of your resources.

I think there is still a disconnect in certain corridors and maybe even certain councils. What your goal is here is not reaching

the far reaches of whether it actually ever hits the road on the regulatory side.

I think part of it is just the focus of attention that has to occur when they are going through this process. And sometimes to be mindful of the fact that these are goals you would like to see achieved.

Because on the NOAA side, for example, I've seen a remarkable change since Chris came on board, to say it. But at the council level, on the other hand, I don't quite see it playing out that way.

Underutilization is one that comes to mine. There seems to be some, just in the review process itself of the catch share program, it seems like there are some pretty obvious analysis that could have been done that was skipped that might have got us to a better place toward where you are aiming at going right now.

So I'm just mentioning that in the broader context because it's fine to have the goals and objectives, but we also have to have the go all the way permeate through the entire system. So I'll just mention that and leave it

at that.

DR. DOREMUS: Well, thank you Mike.

That's very much appreciated comments. The only response I would offer is we do want to hear about where any of you see opportunities of this type.

And I certainly do want to acknowledge that the fisheries science and management community is large. We are a substantial piece of it, but we don't control all of it. And our work with the councils is absolutely critical. And, yes, it will take some time to work through these issues.

It is an incredibly democratic process. And like lots of democratic processes, they tend to be slow, good, but perhaps inefficient. So we'll keep pressing and always appreciate your recommendations for areas which should be focused on.

MR. OKONIEWSKI: I can point to a number of cases that I've been working on personally for five years now. So, if it's needed or you want to see it, I can tell you about one or two examples.

DR. DOREMUS: I'd be happy to.

MR. OKONIEWSKI: Okay.

DR. DOREMUS: Absolutely.

MR. OKONIEWSKI: Thank you.

DR. DOREMUS: Thank you.

CHAIR FELLER: Okay. I've got Stephanie and then Joe and then Robert and then Kellie.

MS. MORELAND: Thanks for the presentation Paul. This is Stefanie Moreland. I appreciate that you've been really thoughtful about how to ensure the aquaculture initiative doesn't undermine the efforts that NOAA has invested in wild fisheries management and in supporting U.S. Seafood producers and marketing.

But I think that the effort could be leveraged to better benefit mutually aquaculture and U.S. wild capture fishery interests. For example, as I look through those grants, I understand why there is a reference to tofu as a potential substituted to fishmeal, other projects being funded to minimize dependence on fishmeal and fish oil.

But at the same time, in the North

Pacific we have some fisheries that we've had third-party researchers determine have a lower environmental impact than tofu producing fishmeal that now has lost market opportunity in its sole market in China because of 25 percent tariffs we face there.

And there could be some dialogue about how to benefit U.S. aquaculture advancement and U.S. wild in that case. I see other opportunities in terms of message that is about responsible seafood for U.S. consumers that, again, has -- the investment in this initiative could help both the future of U.S. aquaculture industry as well as wild capture.

What advisory structure or input could we be thinking about so that NOAA is seeing those opportunities and maximizing them? Where can we have this discussion intersector in order to sort through there there is opportunities to benefit both wild and aquaculture?

DR. DOREMUS: There's a number of places. First and foremost is this body. You and a number of other members of MAFAC, and I think the collective discussion that we're able



to have here, including the points you just made, are part of what we are hoping and anticipating using as a way to see opportunities to support the industry more holistically that we currently are today. And so I would start there.

We are also, in terms of areas of research focus, we are in the process of producing a research and development plan for aquaculture for all of NOAA covering all of all components in fish OAR and NOS. That is substantially driven by and responsive to the characterization of needs coming from the aquaculture task force underneath MAFAC.

And it is also going to be commented on by the Science Advisory Board for all of NOAA in terms of the structure of our approach. Again this best blending Federal R&D, other agency R&D, external nonprofit private R&D sources.

How we get the innovation system dialed into the most productive is where the SAB is going to be weighing in. So that's a second major area where I think the collective input of this committee and more broadly industry in the research community can be extremely helpful to

defining our way forward.

You mentioned feeds. This is an incredible area and one, like many aspects of this territory, can be quite frustrating. I can tell you from our interactions with a variety of folks around legislative options around what sustainable aquaculture means. We will need a lot of help to make things sensible. Definitions of sustainable aquaculture production and feeds in particular will be central to that.

In our view, the sustainable sourcing of the feed inputs is what's most critical. It's not whether it's fish or not fish inputs. That is not the view held by a number of our stakeholders. So that particular topic is one that I think that we will need to do both research in, but also messaging on.

On the research front, I think one of the big things that we need to emphasize is the impact of feed formulation on the growth, success, and nutritional profile of the species themselves -- that is often lost in the equation -- as well as a broader supply chain view on sustainability.

The last area that I want to point to, again, comes back to MAFAC. It's a discussion that we're going to have this afternoon. We are opening up with our afternoon agenda a much broader lens on seafood production and marketing, also expertise on this body that could help us with that. And I think that many of the issues that you've referred to Stefanie might be addressed in that kind of discussion as well.

CHAIR FELLER: Joe?

MR. SCHUMACKER: Thank you Madam Chair. Thank you Paul. So I want to talk about harmful algal blooms real quick. I'm optimistic. I see we have good research dollars in the NOS program out there for grants.

DR. DOREMUS: Yeah.

MR. SCHUMACKER: Grants supported on that. What I'm concerned about is the division potentially that I see in the northwest where we have the harmful algal bloom program housed within the science center out there, the Northwest Fishery Science Center.

And they are some of the best expertise on the west coast for (inaudible) out there.

They've been integral in making sure that we would develop these current monitoring programs that we have in place on the outer coast, Puget Sound, elsewhere.

But I'm seeing is that they are -- that program is getting lost in NMFS and is potentially is getting ranked low. And I'm concerned about it right now. Can you address that priority with NMFS for harmful algal bloom research within that -- your domain versus NOAA as a whole and how we can potentially keep that going because it's so important to all of us for capture fisheries, aquaculture, et cetera?

DR. DOREMUS: It is. It has probably been insufficiently profiled in that way. And I appreciate the perspective that you're providing and agree with that.

I think from vantage point of the interception with aquaculture, I think the R&D plan is an avenue for communicating that. And I think with our overall -- development and implementation of our overall aquaculture program, I think that offers some profile for the need and the demand for harmful algal blooms.

And along with it, didn't mention it, but want to hear another NOS-run program that provides critical inputs to that is integrated ocean observing systems, of getting the kind of really fine-scale data that we need to inform those kinds of models.

NOAA as a whole has been trying to progress toward what you might call a predictable -- a prediction -- forecasting and prediction capacity in harmful algal blooms. We're still in the world of scientifically trying to figure out what drives these things. How do they get formed? How do they dissipate?

We can track them very well once they appear. We can forecast where they are going to go, but the underlying science and the sort of conditions under which harmful algal blooms appear and what their impacts on the ecosystem are still is driving a lot of research.

So I know NOAA is committed to that. And I think hearing from this body through not just our aquaculture efforts but more broadly is very helpful to that end.

CHAIR FELLER: We have Robert next.

MR. JONES: Switching gears away from aquaculture. I have maybe a comment or a rhetorical question. I focus on the Gulf and South Atlantic. And within the fisheries data collection survey and assessments line item, the inflexibility that you guys have had of recent in the CR environment I recognize.

And there has been reported language around, you know, \$10 million here, \$5 million there for things like the great red snapper count that's going on, and technical support for the states and implementing these efps that are on the water which is great.

But I'm very concerned moving forward about the ability for the agency to implement the Electronic Log Books that were passed for the charter-for-hire industry in both the South Atlantic and the Gulf.

And I'm looking down at what I'm concerned will be a train wreck if we push these ELBs onto industry in those two regions, but then the agency doesn't have the resources to implement on the back end, the management of the data, the port side agents, GPS monitoring.

And that what was a huge success in getting industry to accept advanced electronic monitoring reporting, we've then pushed down onto them without the promise that the data will be used for any sort of management reform that would benefit their industry.

And I guess maybe my comment and a question is what can we do to help, to highlight that issue for the agency and give you the flexibility you need to administer those programs in a way that leads to management reform?

DR. DOREMUS: Thank you. That is an area of concern. I think your expression here of the kind of full- system requirements and successful implementation of Electronic Log Books is very helpful.

As you all have your individual interactions with members of Congress, that's another appropriate avenue for addressing these kinds of concerns.

I would also like to point out, from my vantage point this part of a larger issue that we have that could broadly be put in the context of data management and data monetarization.

Some of you, including our Chair, have been heavily involved in initiatives to try to advance data monetarization and more effective data management through the organization. From my experience, you know, we are pulling to get it together all kinds of different data sources. People are collecting different information for different purposes and trying to integrate them into some of our models.

And there are really substantial challenges in doing that efficiently, quickly, effectively, transparently. So we're trying to work and are very pleased with some of the external support that's being directed toward this that will allow us to work with folks who work in this field in lots of other settings to apply some potential lessons to our organization on how we could handle some of these data management requirements a little more effectively.

That would include, certainly not be limited to the issue that we have in the Gulf with Electronic Log Books and other electronic data collection methods. But we are, throughout



NOAA, not just in fisheries throughout NOAA, we are at the front end of an absolute explosion in data availability.

It's the data utility piece of the question that is very, very challenging, typically very expensive to deal with up front, but can ultimately provide just enormous benefits. And that piece of the question I think is under supported.

We're big on instruments and new data streams and what kind of information we can collect. Assimilating that and truing it up with our existing information set is a whole other matter. And we need to redouble efforts.

So the greater that you all can point to the need there, both internal to us as well as with our external bunch of policy stakeholders, the better we will be off.

CHAIR FELLER: Kelli?

MS. RALSTON: Thank you Madame Chair. Kellie Ralston. I wanted to echo probably a lot of what's already been said. Our support for the harmful algal bloom research that you do. I come from the state of Florida. And we've, obviously,

had some really significant issues down there  
this yea --

DR. DOREMUS: You sure did.

MS. RALSTON: -- between blue-green  
algae and red tide. And I think there still are  
some real deficits in being able to forecast  
where red tide is going to go and kind of what  
conditions are favorable for it in certain areas.  
So I appreciate you all's focus on that area.

I wanted to echo a little bit too of  
what Robert was saying. Because I'm in Florida,  
focus a lot on the southeast region of fishery  
management councils and recognize that there are  
significant funding challenges for those councils  
to actually be able to make informed decisions.

There are a bottle mix on stock  
assessments because of lack of -- inability to  
properly staff or schedule those assessments  
because of budget constraints. So I just wanted  
to let you know that that is a priority for us  
and that we are certainly taking that message to  
Congress to advocate for additional funding for  
that.

But wanted to point out to you that it

was one of our priorities.

DR. DOREMUS: Thank you, Kellie. I much appreciate the input there.

CHAIR FELLER: Matt?

MR. UPTON: Matt Upton. Paul, about your presentation. I had a question about survey vessels in the North Pacific. The council recently sent a letter that follows some advice from our SSC that we really need five vessels to be able to manage the fisheries.

That's what we've had in the past. We're not down to three vessels. I was just wondering if for 2019-2020 if that's something you guys looked into. Or, if not, when you would.

And also whether or not it's an issue of prioritization of funding because on one hand we hear that there is budget limitations on surveys, but then we also get requests from NOAA economists asking for our feelings about climate change.

And so it seems like there might be a disconnect here, because we really want to have the hard science continue. So I was just

wondering if you had any comments on survey vessels for the North Pacific.

DR. DOREMUS: The only comment I would make at this point in time is that we assess and focus on those survey requirements at the highest levels of the organization. It is a priority. Chris is very focused on that. All of us are.

We have a very, very strong commitment to maintaining continuity in our -- the data streams that we use for managing existing fisheries. We do need to look across the board, not only in the North Atlantic, but elsewhere, we need to look at efficiency potential, efficiency gains, and evaluate those.

So with that general caveat, as we deal with the kind of budget uncertainty, budget reality that we're facing here, rising cost of doing business, flat budgets at best, that pressure for looking at ways to optimize.

So we're trying to invest in acoustic technologies and unmanned systems for data collection. We're trying to find more cost effective ways to collect information.

So I'm not going to promise that

nothing will ever change. I can promise that we are fully committed to getting -- maintaining as much continuity as cost effectively as possible with our existing data streams for fisheries in the North Atlantic, North Pacific, and elsewhere.

CHAIR FELLER: Megan?

MS. DAVIS: Thank you. Thank you, Paul, for the presentation. I wanted to go back to this idea of the intersection of aquaculture and fisheries and what both you and Stefanie brought up.

In Florida, back in the 1990s there was a big net ban for the fishermen being not able to fish with the nets. And then the state came in and put out a big retraining program together.

And over 700 fishermen were retrained to be clam farmers. And now there is a thriving industry in the State of Florida.

So my question is, is this something that NOAA might look at? Getting your thoughts on this. NOAA might look at, in terms of pilot projects being long-term pilot projects that could potentially help the fishing community to actually build an industry, but have enough of a

time and enough of the funding and the resources to actually build an industry together with a fisheries community.

DR. DOREMUS: Thank you, Megan, for that perspective. While pilots are by definition time bound, I do think the very issue that you're recognizing is a really important one.

I was just talking with some of my interagency colleagues who are preparing for a National Science and Technology Council meeting of our aquaculture subcommittee. We are, under that committee, pursuing a government-wide research plan.

Our science plan that you all are contributing toward is going to be our input into that. And one of other major things we're talking about is where economic and social science research is really needed.

This is one area. It's an area of concern. It is about understanding how -- kind of modeling out different mechanisms for seeing market developments in different areas. So different type of species composition, supply change effects, a lot of things like that.

So there can be greater understanding earlier in the process about the kind of full picture economically of what you could anticipate from developments in different parts of the industry.

So I think things like that, the example that you point to is a very good one. Being able to support that with appropriate and economic and social scientific analytical work so that those community decisions can be well informed. To me that seems like a very responsible way to go.

CHAIR FELLER: I don't see any more cards up. So I think we're done. Thanks Paul.

DR. DOREMUS: Thank you.

CHAIR FELLER: Much appreciated.

DR. DOREMUS: I look forward to conversations in our -- on aquaculture in particular -- in our next session.

CHAIR FELLER: Yeah, likewise.

DR. DOREMUS: Thank you.

CHAIR FELLER: So we have a bit of a break scheduled for right now. It's about 10:30, so back in seats by 10:45 please. Thanks.

(Recess)

CHAIR FELLER: Hey folks. I think it's time to get started again if folks could take their seats. We're going to spend the next hour or so talking about the NOAA Aquaculture Program with David O'Brien and Paul Doremus. So, you guys?

DR. DOREMUS: I'm back.

CHAIR FELLER: You guys, I'd welcome your attention.

DR. DOREMUS: And you will not hear too much from me. I've already set the context for this in terms of our broad seafood production initiative. What you have heard from us in the past, we have been working for quite some time with the administration on a more formal approach to this priority area for supporting US seafood production. There is a well-packaged, well-designed initiative that the secretary has signed off on. This is getting the highest level attention in the Department as well as in NOAA.

We are anticipating public announcements of this program that's going to have these three major components supporting



improved regulatory functioning for our wild capture fisheries, looking at ways to improve output as the bottom line there, an emphasis on trade and foreign market access and a big emphasis on aquaculture and that's why we're pleased to have David O'Brien here to talk to us about. I did mention as well the Aqua Act that was introduced in both the Senate and the House.

The only other thing I want to mention, it was brought up earlier, was the recent ruling on our approach to defining aquaculture as harvesting fish under Magnuson. That was recently rule in the negative. We're still in the process of thinking through that ruling, it's legal underpinnings. We are deciding as an agency whether to recommend to the Department of Justice an appeal. It's still in process.

The bottom line is twofold. One is whatever way we go, we need to continue to look for avenues for advanced aquaculture in the gulf and elsewhere. There are a couple of pilots that we anticipate going for, regardless. If folks do want to produce aquaculture products in federal waters in the Gulf of Mexico, they can do that

today with if it's finfish, with an Army Corps of Engineers permit and an EPA of Discharge permit. Or if it's shellfish, with just the former.

So, it isn't an issue that has real clear implications at this point of view. I think the bottom line is continued legal regulatory uncertainty is a bad thing. I think it raises the ante for a statutory change that will clarify this issue once and for all and everywhere. In the meantime, we're continuing to proceed. We're evaluating this. We'll decide what course of action to take. And there is a lot that we can do under any of these scenarios; a ruling standing, a ruling challenged, legislation, no legislation. There is a lot we can do to improve the prospects for US Aquaculture and that's what David is here to talk to you about. So I'll turn the mic over to him and we'll look forward to Q&A on this initiative and we'll press ahead. Thank you, Dave.

MR. O'BRIEN: Thank you, Paul. Good morning, everyone. I know some of you, but not all of you. My name is David O'Brien. I'm the Deputy Director of the NOAA Fisheries Office of

Aquaculture. I'm happy to be here. I'm going to go through my slides. Thanks to Paul for setting us up so well, both just a moment ago and also in his entire presentation. I'm going to touch on many of the things Paul talked on and sort of talk about next steps and dig a little deeper in terms of the aquaculture program and our plan for moving forward to advance US aquaculture.

I'll say that I much prefer to have these kinds of discussions be actual discussions, conversations. So if you want to save the questions for the end, that's fine, but also feel free to interrupt at any time if you want me to pursue something a little bit more deeply or have a question. Please feel free to jump in. I think it's more interesting for everyone that way.

So I'd like to start with just a few slides on why we're even focusing on aquaculture. I know for many of you, this is old material, but I think there's some faces here who are maybe not as familiar with the underpinnings for our efforts on aquaculture, so I want to spend just a few minutes talking about that. This is data

from the Food and Agriculture Organization from their SOFIA report. It comes out every couple of years. It shows the global seafood supply and where it's coming from. The sort of orange/brown area is wild harvest. The blue area, or bluish-gray in the slide, is from aquaculture.

There's a few things that you see in this slide. One is that since about the mid-1980s, global catch from wild harvest has hit a plateau, roughly 90 million metric tons. It's bounced around a bit up and down, but it's really hit that sort of plateau. Since that time, aquaculture has increased dramatically. It's happened primarily in Asia, but it's growing around the world. In 2011, globally we hit a key milestone where the seafood the people consume from aquaculture actually exceeded that from wild harvest for the first time. And for those who are wondering why it doesn't seem to be that way on this graph, about 20 million metric tons roughly comes off the top in a sense for industrial use for animal feeds primarily. So, of the food we actually eat, starting in 2011, about more than half has come from aquaculture.

And the World Bank several years ago did a projection of their fish to 2030 looking at where seafood is going to come from globally and they have predicted that by 2030, almost two thirds of the global seafood supply will come from aquaculture.

So, those are global statistics, global trends. They are roughly mirrored, at least domestically, in the sense that if you talk to our fisheries managers here in the United States, you'll find that there is some room to make improvements on the wild capture side in terms of more wild seafood coming in, either through improving stocks that are already fished or some under-utilized stocks. But for the most part, our managers will tell you that there's not much room to improve on the wild fish side in terms of getting more actual production.

So, as we talked, and as Paul has talked about, the Administration's emphasis on seafood supply, it's clear that most of that increase is going to have to come from aquaculture. This is actually an old slide, but it's one made by partners. We can go ahead and

update it, but I keep presenting it because I think it does a very good job of showing the untapped potential of US aquaculture. This needs a little explanation. The orange and the blue bars, respectively, represent the total land area and water area available for aquaculture production for each of these countries. The size of the fish represents the amount of seafood being produced through aquaculture.

As you can see, the United States has the largest area of bars, significantly far more than China, and one of the smallest fish. What this does is very graphically depict that we do have a lot of room to increase aquaculture production in the United States. There's a lot of room for that fish to get bigger. I will also add that because this graphic again is now several years old, we will now have to look at the top right, it says we're in the top 13 aquaculture producers. We've actually dropped it down significantly. We're now number 17 or 18, depending on how you measure it, in the world in terms of aquaculture production. Much smaller than countries that are much smaller than us.

So, there's a lot of room to improve.

I will also add that more recently, there was a report that was published led by the UC Santa Barbara group, the Brenn School, that sort of focuses on this topic as well. It's called the hot spots paper for those who are familiar with it. Rebecca Gentry lead that effort. And it looks at globally where the potential for aquaculture is. There's a couple of key takeaways from that paper that echo this graph right here. One is space really is not a limiting factor in a sense. They looked at the available area for aquaculture globally again, and they found that it was .015 percent, as I recall, of the total area available for aquaculture if it was put into production could equal the entire seafood supply for the world currently. So it's a huge potential in a very space efficient way.

And they also echoed a point, which I think anyone who has worked in aquaculture will find very familiar, which is that the US has a very high growth potential for aquaculture but is challenged by regulatory inefficiencies and

uncertainties. That's a common theme you'll hear me talk about today and if you've ever heard anyone talk about aquaculture in the past 20 years, you've probably heard the same thing.

So what are the barriers to US aquaculture? Paul touched on some of these and I just mentioned a moment ago the complex and inefficient and I would add uncertain regulatory process. That's in part due to environmental concerns, both real and perceived, that ties into a limited social license for aquaculture and of course technology needs as well. I will add and just dive into these a little bit.

The environmental concerns is something that we've been focusing on at NOAA for quite some time. As you talk to people in the press or some stakeholders, you generally find that there is a sort of cloud of uncertainty and negativity around environmental concerns of aquaculture. What you find is there's often a kernel of truth there, but it's either old information, outdated information, maybe misperceived information, and we spent a lot of time and effort over the years on outreach to try to set the story straight and



say this is where the concerns actually are. Here's where there either were concerns in the past, but aren't anymore. Just an example, I think most people if you asked, most of the public would say use of antibiotics in salmon aquaculture is still a major concern. But last time I checked, and Sebastian correct me if I'm wrong, we haven't used antibiotics in Maine in a very long time, having moved to vaccines 15 years ago, something like that. That's just one example.

So, the outreach and getting the message out and the true concerns about aquaculture is an important part of what we've been doing. The other part is where there have been concerns or just uncertainty, we've dedicated our research efforts largely to address those concerns. Paul had mentioned our work with the Ocean Service on citing. We didn't have very good citing programs back maybe 10 years ago. We worked with the Ocean Service to build that up to try to find areas where we can avoid conflicts, avoid environmental issues, and really give us a better sense of where to put or not to cite

aquaculture operations.

Similarly, we didn't have a good sense of the potential genetic impacts of escaped fish going back a number of years ago. We've worked with the Northwest Fisheries Science Center and some European colleagues to develop what we call the Omega Model, but it's a tool to try to predict and avoid those potential genetic impacts. So, as we develop those tools, put them into operation, it's important for our managers first to know they're out there and they're available, and also for the public and proprietors and others to understand that we're taking this seriously and we've made a lot of progress in the past 30 years or so in US aquaculture.

So, Paul mentioned the Department of Commerce's strategic plan. First, I will say that in this plan, both this slide and I'll jump to the next one for a moment, the top strategy talks about providing a one stop shop for US aquaculture as an effort as a way to streamline permitting and create a predictable environment. Jumping ahead, and I'll jump back in a moment,

the other major piece is a science piece using research to include (inaudible) to address bottlenecks and other types of industry needs.

I pointed this because again, these messages we've been saying in one form or another for a very long time. Over different administrations, Republican and Democrat, these general themes have come out over and over again. So, this new administration, certainly there's a greater emphasis on things like Seafood Trade Deficit, but it's really more managing around the edges in a sense. We've been saying the same thing for a long time. It's got a lot of support. It's a matter of putting these into action. Getting aquaculture, the status of aquaculture, has been an important part of what we've been trying to do and I think this plan is a good example of that. To have aquaculture featured so prominently in the Department of Commerce's strategic plan is quite remarkable frankly, given where we've come from. So, seeing that the high level attention from the department is very much encouraging.

So, going back to the one stop shop, I

will say that this is one area where we're still trying to understand the implications of the court case that Paul mentioned. We had a plan in place to develop this one stop shop, sort of built upon the foundation of the Gulf Aquaculture Plan and the interagency agreements have been built around that. So, with this court case, we are pausing, taking a step back, reevaluating. At the same time though, there's two bullets under that. We are still working very much on those two, because really what we're trying to do is streamline the permitting process and make it more predictable. And I'll talk about our efforts to do that in a moment.

Secondly, as we looked at research to advance marine aquaculture, we're working on pilot programs in particular, we're working with Sea Grant on this and I'll talk about that in a moment in a bit more detail. And then in general, research to remove bottlenecks for aquaculture development.

So, where we are now, we're taking this DOC strategic plan, using that to build upon our prior planning efforts in developing a new

aquaculture action plan. It's currently in development. I would say it's in the early stages of development. It builds upon our NMFS aquaculture strategic plan, so we're not starting from scratch here. And I would say that 2016 plan, while it was technically a NMFS plan, we worked very closely with Sea Grant and with the Ocean Service on that, so it really reflects the broader NOAA strategy.

This new plan will address these four goals, which again are reflected in the DOC's strategic plan. I would say one of the areas that is perhaps new or different this time around, is there's greater emphasis on regional approaches. The prior plan in 2016 was more top down, it was the office of aquaculture, certainly working with our regional counterparts, but it was really a headquarters' driven plan. This newer plan is focused more on what can be done at the regional level, where the rubber really hits the road in most of these cases. How do you actually make progress in the northeast region or in southern California? And what can the regional administrators do in bringing their

talents and resources to the table? So, this again is at the very early stage. Maybe the next MAFAC meeting we'll have something more to report out on. I just want to mention that this is under development.

So this is a slide that Paul already mentioned. I won't go into this in detail except I want to use this as a jumping off point to talk about our planned FY '19 investments. So, Paul discussed this in some detail. I'll just point out that currently we're under continued resolution. We don't know exactly how much money we're going to get in 2019. However, given the NMFS line, the FY '18 enacted amount is identical to the House incentive marker. They're all 15 million dollars. That's a pretty good indication. It's enough for us to be able to plan with at least. To say let's plan for the 15 million dollar mark and if it goes up or down from there, we can adjust. But that's what we're planning. Similarly, for Sea Grant, FY '18 is very similar to both the house incentive mark for FY '19. We have a reasonable amount of certainty that we'll have something in that ballpark and

we'll start planning accordingly.

So again, this is something that Paul mentioned, but I want to highlight, as perhaps challenge is too strong a word, but it's a context that we begin to work with as we plan for FY '19 and beyond. Congress is giving us additional resources, which is very welcomed. And they have a lot of interest in aquaculture. The proprietors do in particular. That comes with some strings attached that are similar to what we'd be doing anyway in many cases. However, it is a reality that we perhaps don't have as much flexibility as we might like in some cases. I just want to point out what I mean along those lines.

So, in the Senate, we have NMFS, we have direction and encouragement, two NFMS, to do a variety of things including designating a regional aquaculture coordinator in each region. We already had five out of six covered, so we'd add the sixth. They want us to focus five million dollars on off-bottom oyster research, two and a half million for pilot projects, and then a lot of emphasis on funding the Fisheries

Science Centers, particularly the Northeast and Northwest Fisheries Science Centers. At least keeping the funding levels the same, but also making sure their staffing levels, as much as we are able, bring them back to 2010 levels when they were higher than they are today. And then also general connect research to address shellfish industry challenges.

In the House, it's much more simple. (inaudible) tells NOAA to support up to 10 million dollars in shellfish aquaculture research. So, there's two dimensions in a sense to this direction. One is Congress is telling us in many ways, especially the Senate, what to spend our resources on. But the other part is they're telling us where the money has to come from. And those are two different pieces. The House points to NOAA, says NOAA-wide spend 10 million dollars on shellfish research. So, when we do that, it points to certainly our own budget line, the aquaculture PPA at NMFS, but also Sea Grant or SK or SBIR, these are the grant programs, or even NCCOS as they are developing RFPs for HABs Research that focuses on



aquaculture. We can include those as we tally those numbers up.

The Senate is more directed. If I said NMFS, I should've said NMFS Aquaculture PPA because almost all of its' direction is applied specifically to our 15 million dollars. Which again, it's a good problem to have. We're getting more resources, but it does come with some strings attached and it does influence how we're able to plan for FY '19 and beyond. Let's pause for a moment. Are there any questions or comments at this point? Or I'm happy to continue. Okay.

So, given all that, I want to present our planned investments for FY '19. And again, this is based on our assumed budget under FY '19, which we don't have clarity on just yet, but I think we are pretty clear what it's going to be. We're looking at investing five million dollars in grants across regional pilots. And again, I'm sorry, this is just the NMFS portion, not the Sea Grant portion. Five million dollars in grants for regional pilots in oyster research. Another 1 million, over a million dollars, ramping up to

1.7 million will be going to increase permit allocations at our NMFS Science Centers.

Let me go through this list here and then we'll back up and dive into some of these a bit more deeply. On the regulatory permitting side, which is very much a focus of the DOC strategic plan, regulatory streamlining takes people to do it, so we're trying to hire those people to help us do it. We're hiring a senior advisor for aquaculture partnerships, three new aquaculture coordinators, that's in addition to the folks we already have, additional regulatory and communication support, an additional support on NEPA and ESA. I'll say this plan attempts to balance a variety of factors, which I already talked about.

The congressional interest very much focuses on science and shellfish and oysters in particular, with the DOC strategic plan which does have a science component, but also focuses on regulatory streamlining and efficiencies, which is not really reflected directly in the congressional procreations language. So we're trying to balance those two as best we can and

this is the plan we came up with and it hits all those marks pretty well. What it doesn't do unfortunately is allow us to branch out in some different directions, and Paul alluded to this a little bit. We don't have a lot of capacity to increase our internal research for example on fin fish or seaweeds, with focusing much on the oyster and shellfish work.

But that being said, this I think is a good balance in where we're planning to go. Going back up a moment to the science center, one of the messages we've heard loud and clear, both from proprietors and some constituents, we really want to beef up our northeast and northwest science centers' capabilities that had eroded over time for a variety of reasons. But they have started to rebuild. Over the past several years, the budgets have gone up, as Paul pointed to on one of his graphs. And the funding has been at least stable and actually been increasing at both of those science centers. That being said, so have costs. And that's one of the challenges we have that as per capita labor costs have gone up, every time someone gets a raise, it

costs more money. But also, IT security and things like that across the board have gone up for the agency and for lots of other companies as well and agencies.

So that has to come from somewhere. So all the different programs are pitching in a little more than they used to for a variety of those other support functions I would say. So, even though we're giving more money to the science centers and we're able to increase staffing to a certain level, it's not quite that one to one correlation that some folks may want to see.

That being said, we're excited to be able to hire someone at the Alaska Science Center for the first time, dedicated to aquaculture research. We're waiting on the Science Director to be named and he was just named Bob Foy just a few days ago. He's an interesting but strong supporter for aquaculture in the past. We're looking forward to working with him to identify more precisely what this research will focus on. It won't be fin fish, I guarantee that. But probably could be some combination of shell fish

and seaweed. And also, we were able to hire additional researchers at the Northeast Science Center. And again, we're working with that group up there on exactly what their staffing plan would look like, but right now it looks like in the ballpark of four to five additional FTEs, which is increasing funding, which I think will make the folks up in the northeast in particular quite happy.

The northwest is a different story. I didn't highlight this here, but we've been using some aquaculture funds in the past just to frankly plug some holes that they had for quite some time. We can make them whole and get them on a good, solid foundation for future growth as we get additionally perhaps more resources.

I will point to on the regulatory permitting side, I'm going to jump ahead a moment. I'm going to talk more about our science plan, but one of our key elements is focusing more on regional pilot projects with our partners at Sea Grant and the commissions. What we're looking at, and the (inaudible) will be coming out soon, we still need to work out the details,

but we're looking at funding probably a smaller number of larger, longer term projects. I think it's more typical of what you'd expect from a pilot project.

One of the implications of that is that the environmental review required to authorize the money going out to our partners will have to be more intense. So we're looking at how do we use our new contract support from NEPA and Endangered Species Act to look at a variety of things but including how do we analyze the potential impacts of these pilot projects so that we don't create a road block of the money being ready to go but the review is not being done and stopping our partners from getting lines in the water.

I wish this meeting was being held in a few weeks. I think I'd have more concrete information to share, but I will say there's a few RFPs that are several weeks away from coming out. I just want to highlight them for you here. One is the regional pilot that I already mentioned. That's going to come perhaps in two forms.

We're certainly working with our partners at the Three Fisheries Commissions, as we did last year, to get some money out the door to partners to establish regional pilot projects. In addition, we're in close conversation with Sea Grant about how to integrate that program with Sea Grant's efforts. Again, we're still working out some of those details, but we've had a good partnership with Sea Grant for a long time. We're trying to actually cement it and strengthen it in particular with respect to these regional pilot projects.

Another broad area is working with the Commissions again. We'll be putting out an RFP for oyster consortia. This responds directly to the congressional language, both House and Senate, where they directed us to work on, the Senate on oysters, and the House on shellfish more broadly, and through other discussions, there's been an interest both from our stakeholders as well as the administration in making sure we have a good balance of internal and external funding to support this effort. So we're putting out roughly three million dollars,

a million dollars each, for these oyster consortia grants. One for each commission essentially. And again, the RFP will be coming out shortly. We want to make it's responsive to the senate language in particular but also gives enough flexibility that those region-specific needs are addressed. We can't do a one-size-fits-all approach, so we're working with the commissions very closely on that.

And then more broadly, the Sea Grant, I'd say project grants which is a more typical Sea Grant RFP that goes out every year, typically one to two year grant, relatively small and short duration, includes things like industry development through extension and other means, those will be coming out as well all within the next few weeks. So, standby for that and we're happy to find a place to post that information on like the MAFAC website or something. Heidi, maybe you can find a way to sort of get this information out as people see fit. Cole, anything to add on the Sea Grant or anything else before I move on? Okay. Yes? Please.

MR. ESPINOZA: Ray Espinoza. I have a



quick question about the oyster consertion, the regional pilot. How about for areas that don't have commissions like the US Caribbean?

MR. O'BRIEN: I need to double check on that. Actually, I believe your commission works with the Caribbean as well?

MR. DONALDSON: Yes, on several of the data collection programs we have. I'm not sure in the past if we've included the Caribbean or not. I'd have to check. But if there's interest in that, we can certainly expand it. Obviously, it potentially decreases the amount that we can fund, but if there's interest, then it's certainly something we can look into.

MR. O'BRIEN: And I would add that I believe the first phase would be sort of a planning phase for all of these concoctions. And at least the vision right now is a single award for each of the commissions, but certainly I think and correct me if I'm wrong, the Caribbean partners could group together with GCRL or anyone else and work together as part of the contortion. I would say talk to your partners as well.

MR. ESPINOZA: Okay, thank you.

MR. O'BRIEN: Sure. I want to talk on a few key deliverables and upcoming strategies we have for NOAA science in general, for aquaculture. One is again, I wish this meeting was a few weeks from now because I can say we just announced the NOAA science review, but I'll say that's a few weeks away still. I think folks will recall, this was going back probably a couple years now, there was a science review that was initiated looking at west coast and east coast review of NOAA science program broadly including the ocean service. Well, internal science I should say. It didn't include our grants programs, it did include all of NOAA's resources internally including the Fisheries Science Centers as well as NCOS' efforts.

That plan has been very close to done for quite some time, but as these things go, sometimes the final stages it takes a little while to get through. But we're very close to announcing that and I will say, I think people already know this already or some do, but the review -- to hit the highlights -- it gives very high marks in general to NOAA science in terms of

the existing capabilities, what we're able to do. It does note that in general, this is from an external review panel, that in general they want to see an expansion of NOAA science efforts for aquaculture including they noted there's no real capability right now in for example the southwest center, the Pacific Allen center, those are highlighted as longer term needs for us to address if and when we are able. And they also noted there was for example no seaweed experts in the agency. So, they did point to some holes, but in general the message was what we're doing, we do at high quality, a very high level. But we need to expand both geographically in terms of our research portfolio.

The other piece that we're working on and I believe Paul alluded to this as well is the Federal Aquaculture Research plan. This comes under the Office of Science and Technology Policy group that has been stood up for quite some time now. They're looking at both science and management efforts inter-agency to advance aquaculture. Part of that plan is the Federal Aquaculture Research Plan. I'll say again, this

is a place where we're not starting from scratch. Back in 2014, a plan was published with NOAA and USDA being the key authors but other agencies were involved as well, that laid out a whole series of long term short and long term research priorities that the federal partners collectively are going to be working towards. So, that's a very good foundation for this future effort that's just getting under way now. So, stay tuned for that.

And the last piece is something that I believe this group is aware of. This is the NOAA Aquaculture Science Plan. This is an effort I know some of the aquaculture task force of MAFAC has been asked to provide some input on this plan. I believe they're reporting on it tomorrow as I recall or this afternoon. So I'm curious to see where that goes. Very curious to see what their recommendations are. I have some insight to that, but I'm curious to see the final conclusions. This plan, again I mentioned earlier that we have a NMFS aquaculture strategy already from 2016 that really does include some science and includes our broader NOAA partners.

But this is the first dedicated effort to look NOAA-wide at not just our internal science but also our grants programs to see how do we collectively address a series of challenges. And I would say this is really driven from a customer service standpoint.

We've been talking for quite some time now about the primary customers of NOAA science. One being the regulators. We want to make sure for example that our ESA consultation biologists have the tools in front of them, the information in front of them, to make informed, efficient decisions when they see a permit come across their desk that may have, for example, an entanglement of risks associated with it. We're trying to get those scientific advice products to those managers is a very important part of our research enterprise. Conducting the science itself, the basic science, to understand what's going on and how to avoid impacts for example, but then packaging that science in a way that's meaningful to our managers.

And the other main customer of course is the industry. Looking at ways we can use NOAA

science both internal and external, again through grants, to advance those areas where they need assistance or are asking for assistance, whether it be on better tools and diagnostic tools for disease, ways to mitigate disease impacts, better feed formulations, better engineering systems, it's a range of things. In fact, I should've gone to this slide already, there's no wide approach.

Really, it's in very broad breast strokes. NMFS focuses on internal research and grants for aquaculture development with Sea Grant focusing on the granting program including funding extension work. At the Ocean Service, they have a more narrow focus but a very important role in special planning. And all of these pieces have a scientific component to them. I mentioned the regulatory customer but the industry customer as well. In general, I took a snippet from the table I believe the ATF will report on later today, just the general approach at how we're looking at this, for every discipline, say genetics, we look at what the regulators need and what does the industry need.

For example, a regulator may be asking about the genetic impacts or potential impacts of escapes. Whereas the industry may be looking at more genetic (inaudible) programs. How do we first identify what those needs are and then the next step will be how do we implement that and plan that out? Similarly for engineering, the regulators will be asking primarily about reducing entanglement risks for example, which is a big issue in some parts of the country. The industry would be looking at it from a different perspective of cost effective and reliable gear.

I'll say another piece to this puzzle is once we have the broad disciplines and needs laid out per customer, we'll be reaching out and we've already reached out to in fact the NOAA science advisory board as well as other scientific experts to help us determine how do we get from this level of detail down to actually implementing these things? How do we for example establish or build up a genetics program to address both of these needs? How do we establish an engineering program or work with partners to do an engineering program to address both of

those needs?

So, that's where we are right now. We're very much in the planning stage. Eager again to look at what the task force comes up with later today. And that's all I had. I'm happy to answer any questions or have any further discussion. I'm here to answer. We have Cole and others who can answer questions as well about the Sea Grant perspective. I'm happy to take any questions at this point.

CHAIR FELLER: I see Joe and then Stefanie and then Mike and then Jim.

MR. SCHUMACKER: Alright. Thank you, Madam Chair. A lot of coffee this morning. Sorry, a lot of questions. This one is pretty quick though. One of the great impediments to marine aquaculture in the US are citing and visual landscape interference if you will, for lack of a better terms, in the northwest. It's one of our great impediments and I'm sure elsewhere. Are you addressing that in any way with the RFP process at this point? Is there anything in there to look at potential solutions or mitigation for that issue? And the second



quick issue is plastics. One word, plastics.

Thank you.

MR. O'BRIEN: I feel like Dustin Hoffman. Well, the first one, I certainly know the answer to. Primarily, our citing and our visualization efforts are run internally through the National Ocean Service. They've stood up a very robust program to look at developing citing tools. And actually, not just developing the tools but sitting down with the industry with regulators to help interpret those tools and come up with what-if scenarios and that sort of thing. In fact, the best example I can think of is down in southern California where HUBBS Sea World institute and their partners have been trying for quite some time to establish their demonstration project off of San Diego. NOS is sitting down with our NMFS regional aquaculture coordinator and the military because there's a lot of military presence there, and HUBBS and others to really hammer out where can we put this and just try to identify those areas where there's military zones or fishing zones where people want to avoid and really narrow down the options.

That's been a very valuable tool.

In addition, they have a whole toolbox in fact on the NCCOS webpage. We can try to share that at some point as well. They have a couple dozen tools I believe that are relevant for aquaculture. One of them is what they call CANBIZ. I forget what it stands for, but it's a visualization tool where you can basically put in -- I've never used it myself -- but the idea is you can put in virtually a fish farm x number of miles from the coast and see what it would look like from shore. And you can start playing again these what if scenarios like can we hide a cage around an island for example or what would the impact be? I'd say in general I've seen the results of just a couple trial runs of this tool and in general, with few exceptions, you have a farm three miles from the shore and you can't see much of anything. But it does help relay those concerns for a lot of folks as well.

As far as plastics go, all I can say at this point is it's certainly on our radar. The northeast science center has been putting some effort into that in looking at the microplastics

that are getting into oysters, trying to understand better what the potential implications are, where it's coming from. These aren't easy questions but they are addressing it in some way.

MR. SCHUMACKER: The issue being more of the material use of plastics within aquaculture as well and are we addressing that issue because obviously it contributes.

MR. O'BRIEN: At this point, I'm not aware of any particular constraints for example or considerations of particular plastics being used. I think it's probably going to be coming down the pipe for a lot of products for fishery products as well as aquaculture. But right now it's a little premature, at least at this point, because we just don't know exactly where these plastics are coming from and what the implications are.

CHAIR FELLER: Stefanie?

MS. MORELAND: Thanks. This is Stefanie Moreland. How do you ensure the grants that you're issuing, for example in the oyster work, aren't competing with private investments from US firms already made or competing for

customers already established that are consuming US product? I'm just trying to get a sense of where you draw the line as we talk about investment in aquaculture with pre-competitive landscape or ensuring you're not competing with US investment already in these projects?

MR. O'BRIEN: Well Stefanie, the consortia RFP is still being developed, so I probably can't answer that specifically. However, in general, I'd say our investments are on the research end. We sometimes work with industry partners. We often work with industry partners. But we're not funding for example startup companies if that's what you're getting at. We are doing basic research that will be applicable to the industry as a whole and certainly the oyster consortia, that's the vision. They'd work with research partners, a bracket from academia for example, working with possible NOAA labs and USDA labs to address these broader research needs and try to answer these key questions that would hopefully be a rising tide that floats all the boat so to speak. It wouldn't be targeted at one specific company or

competing with the investment of any particular company.

CHAIR FELLER: Mike?

MR. OKONIEWSKI: Mike Okoniewski, thank you. Stefanie just asked one of my questions. I find myself on both sides of the fence on this one. But I guess I've heard vastly different estimates on what wild fish resources could be for feeding the planet so to speak based on management systems. It might be like or replicated in the United States elsewhere. I think EDF, and maybe Rob you can correct me if I'm wrong, but as high as 100 percent more because so many fisheries in the world are mismanaged right now. I've also heard that aquaculture has amazing potential and I fully believe that. If we keep using land-based mechanisms for producing animal protein, we could be consuming all the land there is pretty easily. Aquaculture if you think about it, it's three-dimensional, not two-dimensional. So it has another aspect to it. Probably more efficient all the way around. But I guess I do worry a little bit about over focusing on

aquaculture when it seems like there's so many opportunities in front of us also for wild capture. I won't go beyond that.

But the one stop shop, that's absolutely essential if you're going to see real development. Having witnessed one example with oysters, and I think I said this already but I'll repeat it for you, is two years, three years, four years, chasing an expansion project two million dollars later, we barely kept the project we had going because they wanted to revoke our permit. Not expand, but revoke. And this was nothing to do with NFMS. NFMS was actually very helpful. But for two million dollars, just to keep a permit that you already had is ridiculous. And it takes four years or whatever to do it. And the only reason we got the permit in the end was some plant employees testified before the Coastal Commission or whoever it was and convinced them that getting the permit would be a good thing.

So, if you could clear that process up or just have a one stop shop as you say, at least know which organizations you're going to have to

penetrate. And I realize it'll be a multi-year process anyway, but at least that they don't just keep changing the goal post every time you turn around. There's a lot of frustration on that. I listened to one oyster grower, just a small one in Puget Sound one time, told me it took 18 years to get his permit for his property. And it was just a couple acre project. That is ludicrous.

So, the last one, I was curious about the NEPA ESA contracts. Would that mean that you'd be available to help get through that process or what exactly is that?

MR. O'BRIEN: Okay. You had a couple of good questions in there. Let me go through them one at a time. So, you mentioned, and I'm sort of paraphrasing here, for us not to focus too much on aquaculture and not ignore wild fisheries as an opportunity as well. And I would say that's absolutely accurate. We do, and Paul mentioned this, we have an agency-wide effort looking at promoting seafood security and increasing seafood supply. Wild fish is certainly part of that, as is trade

opportunities. So, the three prongs are the wild fisheries, trade opportunities, and aquaculture. That being said, I think it's clear from talking to our fisheries managers that the largest growth potential does come from aquaculture given limitations to our wild fisheries right now. They're pretty close to that maximum sustainable yield. There's places we can improve, but probably not as much as we can improve with aquaculture. That's what we're hearing at least at this point.

As far as the one stop shop goes, we use that, at least the way I'm envisioning that term so to speak, is it's really in some ways a nice catch all for what really is regulatory streamlining, regulatory efficiencies at an inter- agency level that also underpins any kind of one stop permit shop. I'll say for the most part that the one stop shop in the Department of Commerce's plan is really focused more on offshore aquaculture because that's where there's some regulatory uncertainty and we need to really focus on how do we work with the Army Corp of Engineers and EPA and others on developing that



one stop shop.

However, that being said, what we do focus on in coastal waters and for oysters in particular and shellfish, we do have that we started years ago a national shellfish initiative. And that is something we've worked very closely. It's usually state-driven and we work closely with the states. Each state is different. Washington led the way but we worked very closely with them and other federal partners to address those types of concerns. And in the case of Washington, which is the best case I know of, just even mapping out exactly what the process was, identifying all of the boxes and how they pointed to each other, and then looking at it more holistically and saying do we need all of these boxes? Are they duplicative? And then B, can we move from one to the other more efficiently and how do we do it?

I know there's still challenges in Washington and California and other places as well, but there has been significant progress made in Washington in particular where some permits that have been stalling for a very long

time are starting to move slowly, but they are starting to move. So I'm not sure if that addresses your question, but I think the shellfish initiative is probably better than a one stop shop as sort of a chapeau for that.

MR. OKONIEWSKI: I do think that I can see where offshores definitely is a bigger challenge maybe or hurdle. But the on shores have its challenges that are costing a lot of time and money as well.

MR. O'BRIEN: Yeah, and we do work as best we are able with state agencies. And in fact, our regional aquaculture coordinators, one of their key jobs is to be that interface with state agencies and each state does do things a bit differently. Some are more efficient than others when you're trying to work with them. But the coastal waters are driven by the state agencies and we play a participatory role.

The last question you asked about was the NEPA and ESA contractors. We're still mapping out how best to use them frankly. We know there's some low hanging fruit out there in terms of working on national grants. We do want

them to help map out a strategy for us in terms of what consultations, what reviews can be done nationally versus regionally, so we're still working that out. I would say our bandwidth is very limited at this point. With two people, we're not going to be doing consultations, reviews all around the country, but we do want to prioritize while working best with those resources and make the most headway. So, that's again another thing that's sort of in the process right now.

CHAIR FELLER: Great. I've got Jim, Sebastian, Peter, and then Matt.

MR. PARSONS: Thank you, David and Paul. I really want to thank you guys for one of the first times I've been in a room where aquaculture is overemphasized. I don't see it as overemphasis.

MR. O'BRIEN: Overemphasized?

MR. PARSONS: No, not at all. Not from my perspective, but you know these fisheries guys. They've got to get used to this.

MR. O'BRIEN: Appropriately emphasized.

MR. PARSONS: Anyway, I wanted to

reiterate and perhaps reinforce one part that you guys have mentioned and that's staffing of the Fisheries Science Center, particularly as it relates to aquaculture. And the situation I'm most familiar with is of course the Manchester Laboratory in Washington. From what I hear, the northeast lab is pretty similar. But we've got wonderful equipment, a little bit aging facilities but still very capable of doing some great work and no staff.

There's genetic equipment sitting in the labs just going unused or hopefully contractors pick up some of the work, but we just really need to reemphasize in pulling people to utilize these facilities to the maximum.

MR. O'BRIEN: Thanks for that. We recognize we are doing what we can with the resources we have to increase the staffing capability of both of those science centers. And I mentioned Alaska as well. But there's more room to improve, certainly. And I'm hoping with the FY 19 going to FY 20, at the current budget levels we can at least stabilize things and make some incremental progress at both centers.

Probably more in the northeast than the northwest, given where they are, but we can again get the northwest at least a stable foundation to build from. That's kind of where we are right now. Thank you.

CHAIR FELLER: Sebastian?

MR. BELLE: Great, thank you.

Sebastian Belle. David, great presentation and thank you also to Paul for your presentation. I echoed Jim's comments about being in a room where aquaculture is being emphasized. I wouldn't say overemphasized. But I want to start by echoing Stefanie's comments about how are you ensuring that the grants that you're giving or the pilot projects that you're funding are not competing with existing producers or distorting the marketplace. And particularly, in the shellfish world, I think there is the potential for that. And I guess I would just encourage you to find a way to seek some guidance from the private sector to ensure that doesn't happen because the shellfish community in particular I think is at a very delicate point right now in terms of the domestic development that is going on versus the

market. I think you have to be very, very careful with that. So, however you can find a way to do that, I would encourage you to do that.

The other point I'd like to make and I haven't heard a lot about it, but I think you guys deserve a lot of credit for and I want to encourage you to continue your efforts at public education as well as education of your colleagues and other federal agencies. I know that some of the work that you've done has really helped some of those other agencies that have permitting authority or consultation authority under section 7 or the Marine Mammal Protection Act, help staff in those agencies understand the difference between the hyperbole and the actual scientific realities. So, I would encourage you guys to continue those efforts. I think that is critical if we are going to increase the growth of domestic aquaculture.

And I'd also like to put a plug in for funding longer term research than short term research. And I recognize that you're operating under budgetary constraints that are year to year, but I think one of the things which is

quite unique about aquaculture is there are some needs for some very large research level projects that are very long term that the private sector does not have the capacity to fund themselves. And we've seen that our competitors in other countries are doing that very effectively at a very high level and they are outcompeting us because of that.

So, while I recognize there's a need for regional funding and kind of trying to serve local entities if you will, I would really encourage you to also think bigger, longer term, fundamental research areas that are targeted on areas that the industry can't fund itself. And obviously, genetic selection and breeding programs is an obvious one of those kinds of types of research areas. And probably some disease work as well would be another place where that would be very well needed.

And then finally, I want to just ask a question about the Federal Aquaculture Research plan. What are the thoughts there in terms of getting input from the private sector into that plan? I know you guys have made some efforts on

the NOAA strategic aquaculture science plan and I know you've heard from me that I don't think that the aquaculture task force is necessarily representative enough of the diversity of the domestic producer community and you have to find a way to broaden the input there.

But I would ask, what's the plan on the federal aquaculture research plan to get private sector input there? Because a number of the industry groups around the country do an annual research priority or biannual research priority survey with their members. And that's a direct question to the growing community of what do you need now? What do you need five years, ten years out? So, how do we get that information into that exercise?

MR. O'BRIEN: Do you want to talk about that last one Paul?

DR. DOREMUS: Thank you, Sebastian, for all of those comments. On the federal plan, right now I think there's two steps. One is to rely on each of the agencies to have meaningful points of connection with the industry. We're starting here with the aquaculture task force.



That's certainly not the only way that we can get industry feedback. The consortia-based approach is another avenue. And I would like to have some degree of a broader engagement over time that's more structured around that plan as we move forward from its first duration.

On the inter-agency front, we're relying on each agency to do that at the outset. USDA has formal processes, others do as well, for developing their internal research enterprise plans through industry input. But I think one of the things in our next aquaculture subcommittee meeting of this National Science and Technology Committee that I'm cochairing with the USDA, we're going to be talking about mechanisms for improving engagement with industry and others over time. That next meeting is on November 20th.

One of the near term types of things that we're looking at are things like aquaculture America and looking at venues where we have a broad and more representative segment of industry where we can look holistically at the federal government's efforts and the Division of Labor of

cost agencies and how we're collaborating.

Lastly, we have asked to this point -- I want to comment on some of your other questions along with Stefanie's about Division of Labor with industry -- we do generally from a structural point of view look at our labs in long term research-based kinds of ways, a big emphasis there on genetics and health and nutrition types of things. Things the industry can't do on their own. Some of our granting mechanisms and especially some of the work through Sea Grant is really designed to look at the transition into commercialization potential and that's where you manage the interface I think most tightly.

We are asking our science advisory board to look at the overall design issues and to make sure that we have the Division of Labor in our R&D strategy well designed for federal and other sector efforts. We clearly don't want to -- and we're very sensitive -- federal grant agencies certainly don't want to be displacing private investment or distorting the economics of the marketplace. That's very critical. So we're looking for that kind of long-term research base

that the industry identifies as the greatest need.

A lot of the other pieces that we're looking at are things that are for our own use on the regulatory side. So, a big part of our research enterprise is to support management decisions on a lot of different topics. So, I just wanted to offer those additional points.

CHAIR FELLER: So, I've got Peter and then Matt, did you have a question or are you withdrawing?

MR. UPTON: I've got a question.

CHAIR FELLER: Okay. Peter and then Matthew and then I think we're probably going to break.

MR. MOORE: Thank you. Peter Moore. Thank you for your presentation and thank you Paul for yours. I've talked to a few people in the fishing industry lately about what's big in the news in New England and the mid-Atlantic is the wind power development and that footprint. I think there's an opportunity for NOAA to engage with both sides of this fishing and aquaculture community to first of all mitigate some of the

displacement that seems to be inevitable in these huge areas. But second of all, to help some of the communities that will benefit from the wind power development from a staging perspective but may lose in terms of the seafood production perspective. And to look at some of the opportunities for sort of bridging that world between aquaculture and wild capture.

And I can think of examples like the scallop fishery. There's a lot of latent capacity in the scallop industry. There's a fair amount of bottom that you could say will be lost or you could say could be turned over to bottom culture mussel for instance. And I know there's one SK proposal looking at sort of a smaller scale. I've heard people who have put it in and I think it's pretty interesting, sort of intensive culture proposal.

To work off of stuff like that where you have otherwise fisherman feeling pretty threatened by what's going on. I think the other piece of this is right whale interactions. Obviously you've talked to Sebastian a bit about how suspended culture may or may not be an

impediment to right whales depending on how they're done but there's another perfect example of something that could be put into these wind management areas instead of turning them into places that particularly the mobile gear guys are going to be shut out of.

MR. O'BRIEN: I guess a couple of responses to that. One in general is that we do recognize that there's growing interest I believe at least in some parts of the country of the traditional fishing communities and fishing individuals having some interest in aquaculture. We've said for many years there's a spectrum of ways to create seafood and it's not either/or. Some types of fishing are arguably closer to aquaculture. Some of the lobster fishing has elements of aquaculture as well and scallop as you mentioned.

There's at least several projects where fishermen are active participants. Either aquaculture research projects, I'm thinking of UNH in particular, but there's others. And also places like Chesapeake Bay where many of the new oyster leases for oyster aquaculture are being

taken by former or current wild oystermen. So, there's a lot of synergy there that we're trying to encourage through SK grants and other things, but the point is well taken on that front.

For wind farms in particular, that's an area that's been discussed off and on for probably at least eight or ten years. It seems that at least at very high levels, these make perfect sense if you have a wind farm. Could also be used as a staging area for some sort of mussel or other kind of aquaculture. The wind farm industry has their own challenges getting permitted as well, so I think while there was interest there, at least in the past, they said look, we're going to focus on our own immediate challenges and not worry about complicating things with aquaculture. I think there's a recognition that there's at least potentially some real synergies there as well. And I don't know if a good wind farm location is also a good mussel farming location. That part I'm unclear about, but if those do happen to line up, there's potential there as well.

CHAIR FELLER: Paul, did you want to

respond?

DR. DOREMUS: Sure. One of the reasons we're emphasizing NOS capabilities on marine spatial planning is to be able to address these issues systematically, broadly recognize the need to do a better job of spatial planning to optimize use. And the traditional fishing industry input into that process is obviously a great concern of ours and we intend to move forward with that kind of approach.

MR. MOORE: So, I think my encouragement is partly that I think NOAA bares some responsibility to fisherman and the seafood industry and processors. Maybe responsibilities is too heavy a word, but allegiance to that sector, when you see that sort of magnitude of the footprint that the wind power industry has. They have BOEM working for them basically. I think that NOAA is well positioned to say, hey there's a whole other piece to this puzzle. Okay, these guys are giving up a lot of ground potentially, but we need to sort of think about how we keep this industry. We help them adapt and we help them maintain their competitiveness.

There's a lot of latent capacity. The industry in New England and mid- Atlantic is not doing very well in general. It's doing very well in certain places, but in general I would say this could be a way for them to kind of stabilize a little bit. Thanks.

CHAIR FELLER: Matt?

MR. UPTON: Thanks for your presentation David. Matt Upton. Could you speak a little bit to the feed side of the fin fish aquaculture? One of the concerns I have, some of the things I've heard over the years, is that either forage fish or what's sometimes called trash fish is used actually for the feed. I know some fish meal is used which is kind of by-products. I think for the forage fish and the trash fish, which is really just a marketing campaign away from being a higher value fish, I'd have some concerns about that. But is there any way to either incentivize moving towards some of the other feed products? Or it may just be that that's not a big issue and I'm not aware of that? Thanks.

MR. O'BRIEN: Sure. And that's a



question we get a lot. I think it's one of the areas we can point to some very concrete improvement in a number of fronts. Going back maybe 10 years ago, there's still a substantial amount of fish meal and fish oil going to your average feed. Sebastian would know these details more than I would, but it wasn't long ago, probably well over 50 percent of the average fish diet was fish meal and fish oil. Now, I think the salmon diet is around 20 percent, something in that ballpark. As the industry has moved towards plant-based products largely, soy but other things as well.

So, essentially what we've been doing, people talk about feeding carnivorous fish, feeding the lions of the ocean so to speak, it effectively turned what's a carnivore in the wild into an obligate almost an herbivore, close to it, in captivity. And with some good research by NOAA, by USDA, and then by a variety of industry and academic partners, we've collectively really driven down that fish in to fish out ratio that people are quite concerned about in some fronts.

So I wouldn't say it's not an issue at

all, but it's certainly become much less of an issue in recent years to the point that there's even some, at least experimentally, some purely vegetarian diets that seem to be showing some promise. I don't think they've been commercialized yet as far as I'm aware, but they're getting very close. And as new products, new feed ingredients come on the line such as algae and other things, it's quickly becoming much less of an issue that it has been in the past.

MR. UPTON: Thanks for that. So, generally where are we with those ratios right now? My guess is that it would vary across different species and operations, but is there kind of like a general rule of thumb?

MR. O'BRIEN: All I know is that the salmon diet is roughly 20 percent or less I believe right now of fish meal and fish oil. That's the single largest fin fish being produced in the United States. Of course, shell fish wouldn't require anything and kelp of course. So, globally, I think there are some places in the world where trash fish is potentially a

problem. And I leave that to our international fisheries experts. They know more of the details on that front.

I will say though that not just trash fish, but fish trimmings is becoming a really valuable tool as well in a sense. The tails and heads and guts from seafood processing plants used to be just burned or disposed of as trash. Now, it's a very valuable source of Omega 3s, so they're being repurposed and recycled and that's going into this equation of reducing the fish in to fish out ratio.

CHAIR FELLER: Thanks David. Thanks Paul. We are now scheduled for a break for lunch.

(Break for lunch.)

CHAIR FELLER: If you just want to take your seats, we're going to get started in just a minute or two. We have got a packed batch of panel discussions and presentations this afternoon. We need every minute. Jennifer, are you ready?

MS. LUKENS: Yes.

CHAIR FELLER: Awesome. What are we

talking about here? We're going to talk about the Fish and Seafood Promotion Act with Jennifer Lukens. I think you all know her.

MS. LUKENS: I think you all do know me, but for those of you who don't, my name is Jennifer Lukens. I'm the Director of the Office of Policy at NOAA Fisheries and also the Executive Director of MAFAC. So that's one of the things that falls under the purview of my office. So, I'm going to be talking a little bit today to tee up the panel with some information.

Back at MAFAC's spring meeting when they decided to take on the task of building consumer confidence in support for US seafood, the task of developing recommendations for that, they subsequently met after that meeting in order to flush out their work plan of how they were going to attack coming up with recommendations for that. Maybe "attack" isn't the right word, but how they're going to approach that.

One of the questions that they had in their work plan of the things they wanted to address is how do we promote US caught fish in the marketplace? So, I sat in on some of those

conversations and there was a lot of questions around what can NOAA do, what are the authorities? There wasn't a lot of knowledge about that and to be honest, my knowledge wasn't very deep on these issues.

So, we decided to -- and when I say we, I mean the folks in my office -- tried to, as we do with most things with MAFAC, when they're diving into a topic, we try to get experts in or provide information to them to help inform their discussions as they're developing their recommendations. So, what got us to this presentation today is the question "what authorities and capabilities do we have at fisheries relative to marketing and US seafood promotion?"

So, here's a list of things I'm going to run through today. Some I'm going to spend a little bit more time on than others. The first one is the general ethical and legal limitations that we have across federal agencies. I'm going to talk about the Commodity Promotion Research and Information Act, which is a USDA authority but it's very relevant to what we're talking

about. The Efficiency Food Promotion Act. I'm going to talk about some of the authorities or some of the language that we see in Magnison relative to this topic and then I'm going to talk about some of the grant programs that we have that are available.

So, the first thing we did was we went to the lawyers to ask them what our authorities are and what we can do. And usually, I don't know with you, but when I go to the lawyers, they tell me what I can't do first before what I can do. So, they went through this long list of things of what we can't do here. Some of these may be familiar to you.

The first one is you cant use public office for private gain. It really prohibits endorsements. So, an employee can't use their position or title to endorse any product, service, or enterprise except in furtherance of a statutory authority to promote products, services, or enterprises.

The second one is, and those of you who sat in on the subcommittee discussion with me yesterday, we can't lobby. I said that multiple

times yesterday, but we can't use appropriated monies to do any type of advertisement or other things that are designed to influence any member of congress. It's a little out of the limits of what we're talking about today, but the lawyers still wanted me to go through that.

And then we have seen some of our appropriations language most on a yearly basis, prohibition on using appropriated dollars for any type of publicity or propaganda. And then lastly in our appropriations language, in the Senate, commerce committee report language, which I'm told in the past on a yearly basis they have the language there that commerce should not promote any third party certification scheme for seafood sustainability but instead to continue providing consumers with independent and accountable information generated from within the department. Those are the kind of broad what we can't do.

So, in this little research trail that we went down, the thing that was most familiar to me was the USDA and their marketing board. So we went to actually talk to the folks over at USDA and learned about the commodity promotion

research and information act of 1996. The goal of that act is really to be able to maintain and expand markets for any particular type of agriculture commodity. The authority for oversight on this is the Department of Agriculture. It's not inherently governmental for government to be able. We're not in the marketing business. But this statute sets up that government is there to help facilitate that process. It sets up a process and it sets up oversight of this act and Ag is responsible for that.

The role is like it says here, strictly facilitative. And they're also there to certify that the information that's being put out by these promotion boards is true and accurate. And then the last thing here is that these boards that are out lied and outlaid in the act are not funded by appropriated dollars. Rather, they are funded by industry. While there's a lot of effort that goes into standing up these boards by the Department of Agriculture, they actually need to get reimbursed by those marketing boards after it's been stood up.



So, how do they get the money? They set up a system of industry coming together, doing an assessment of what that industry for that particular commodity looks like, and they set an assessment tax. And they decide who is going to get taxed on that and those funds go to support the work of that marketing board.

So, some statistics here. Since this act has been passed, we have currently right now 22 different promotional boards that USDA is overseeing. Each one of them is required, in addition to their marketing plan, to come up with an economic effectiveness study to look back and see how effective they've been. In just one of those studies, the Cotton Checkoff program from between '86 and 2015, the study that they did resulted in for every dollar invested, there was \$7.10 returned for every dollar spent.

And they looked all across all of the different boards and came out with an average for every one dollar spent in the Research and Promotion program, the return on investment ranges anywhere from two dollars to 15 dollars.

So, you may be familiar with some of

these boards and this is how I knew that USDA. This is not for bacon, even though it's Kevin Bacon. This is the egg board. That's pretty clever to get people to talk about eggs. You've got the avocado board here. This one is really interesting and I read an article last week about some folks in the shrimp industry who are looking at the avocado board and looking at marketing opportunities. This board was created in 2002. Their assessment tax was two and a half cents per pound of product. And from 2003 to 2018, they started off with the market in 2003. It was 680 million pounds a year. It generated in that span from 2003 to 2018, it went all the way to 2.4 billion pounds a year. That's nearly 250 percent growth. Is that because of this public marketing campaign? I can't answer that question. Is it because people are getting healthier and avocados is a great thing to eat and they taste good? I like guacamole just as much as everybody else. I don't know, but those are some pretty interesting facts.

And here's another one. I don't watch much TV but I've seen this commercial a gazillion

times. I don't know if anybody else has. This is another one of the things coming out of the promotion boards that USDA is overseeing.

So, while fish products likely would not be defined as considered an agriculture commodity under that statute and that program, I learned in this process, I discovered, I didn't know anybody else knew about this, was the Fish and Seafood Promotion Act of 1986. We have specific legislation dedicated to fish and seafood promotion. Nobody around me knew about it and I mentioned it when somebody on my staff discovered this and they're like, "Oh yeah, I think I remember that." So why is that that we have this statute that's been around so long and I've never heard of it?

So, a couple things about this Fish and Seafood Promotion Act, and I just want to run through some of the statements of purpose here because it's very relevant to what you all are talking about. It's about strengthening competitiveness of the industry. It's encouraging harvest of available species. Encouraging use of domestic fish product.

Improving the quality and efficiency in the marketplace. Educating and informing consumers on the use of fish. Coordinating marketing and promotion with industry and development programs. And educating the public on the nutritional value of fish. So, there's a lot in those seven statements. And these are truncated, so this isn't the exact language. Too many words to put on here, but I have a link to the act itself if you want to get to the specific language.

So, the way the statute is set up, it's divided into two parts. The first part directed the secretary of the Department of Commerce to develop a national level Fish and Seafood Promotion Council. USDA, they called them boards. Under this statute, they called them councils. National level, it set up a council only to be around for five years. There's an explicit sunset clause that it would sunset in '91.

It was made up of 15 different voting members and it is regionally distributed from across industry and across the regions. It calls three from the northeast, three from the

southeast, some members at large, all over the geographic part of the US. So, it establishes this board, but how are you going to pay for it? Here's something different here. This isn't industry funded. This is a national thing that was funded specifically through statute by Saltonstall-Kennedy over 10 million dollars in that five-year time period until it sunset. So that is how this national promotion board was paid for and run, and their job was to really come up with a marketing plan in marketing products.

DOC's role, much the same as Ag's is, is to be able to facilitate the process set up and make sure they're holding themselves accountable and that the information that this council is putting out is accurate. So, we dove into the depths of the NOAA library to find some of the things that this council did. So, mostly there's just some promotional handouts. Why would you microwave fish? I'm not sure, but they tell you how to microwave fish. That might turn you off from fish, I don't know. And just talking about how seafood is healthy and why it's

a great choice. You can even get a cookbook offer. If you send fifty cents away, you'll get a cookbook which I think is kind of funny. And then it had its own little mascot there. I don't know if you can see that, but that's a sturgeon and they call him the Sturgeon General. And his little motto there at the bottom, "Eat fish and seafood twice a week."

But, I saved the really exciting part. This is after lunch. Here's the exciting part. It's really cool. I'm not going to say anything, I'm just going to play it for you. It's one of the things that they put together. So, that's a pretty impressive commercial and that messaging is pretty much spot on with something that you would talk about today. I don't know, I really love the Monty Python approach to that, for those of you who were around watching TV. I don't know how often that aired or if that rings a bell for anybody. Laurel, does it for you?

MS. BRYANT: I do not remember how often it aired, but I do remember it for probably six months or so. I remember when they came around with the Sturgeon General all the time.

MS. LUKENS: Yeah. So, Laurel is one of those people who was around when all of this happened.

MS. BRYANT: Thank you, Jen.

MS. LUKENS: You gave yourself away, I'm sorry. So, moving on to the second part of this act which is part two. It allows for the development of Seafood Marketing Councils. This is where it gets pretty similar to the USDA legislation. You can set up a marketing council for one or more species of fish. And again, it's industry funded. The industry puts together a proposal, they put together a charter of what this council would look like, they need to do an in-depth analysis of what the industry looks like, how they're going to conduct those assessments, they have to conduct a referendum vote of those who would be taxed in the industry.

It also permits these councils to be able to develop quality standards and have a certification label of the products coming out of the council. We developed regulations to execute this program. Most recently, they were updated in 2007. But those regulations, it requires a

NEPA analysis and it requires marketing plans to be able to increase product profits rather than harvest. And remember, this is '86, so I think inadvertently, people weren't thinking about aquaculture at that time or maybe underutilized species, so it excludes those by omission.

But to date, this authority has never been used. No one in the seafood industry has pulled together a proposal to take advantage of this. So, I don't know why, but in looking through the regulations and looking through things, it could be that it is a pretty significant process to undertake. It could be that our industry is so complex and wide and varied that to get everybody to the same table might be extremely challenging. I don't know. These are the types of things I'm just giving you the facts that we were able to look up. But hopefully it would be interesting to hear from our panel in our discussion to see if anything comes up relevant to that.

Next, I went on to Magnuson and we did a word search of Magnuson to see if there was anything in there that talks about marketing and



certainly, there was several different references to that. But the one I want to talk about here, which was done, added during the reauthorization in 2007, and if you see the language in bold there, it talks about marketing sustainable US fishery products including consumer education regarding health or other benefits. So, this gives us the ability to do something relative to marketing. It established a fund to be able to do that, but there wasn't any money put into the fund. It authorized it. And then there's three ways that you can put money in the fund. The first way was you can use quota set asides to put money into the fund. Congress could appropriate it the old fashioned way. Or you could get gifts by states or other public sources or private or non-profit organizations for the purposes of this section. So, again, there's direction under Magnuson and talking about the intent is there, but the dollars haven't been there.

So, then move on to we've heard a lot from Dan yesterday about Saltonstall-Kennedy. That grant program, there's certainly an opportunity as you've heard, the last two years

promotion development and marketing has been one of the key priorities. There's just two examples here. I'll just randomly put them up of what was funded under S-K. There's other ones and we can get you that list from Dan. But also, Sea Grant is another opportunity looking at two samples here from the aquaculture research awards that went towards marketing types of activities. So, again this is not as much an authority as it is a grant opportunity and program to do these types of activities, get funding to undertake these types of activities.

So it hasn't been dormant since 1986. This bill here, S.3615 was introduced by Begich in 2012, and it's called the National Seafood Marketing and Development Act. It's very similar to the Fish and Seafood Promotion Act, but it sets up regional marketing boards instead of species-specific boards. It authorizes funding, so these boards wouldn't be funded by industry. It authorizes it, but it didn't make it out of the Senate at all. It didn't go anywhere. So, that popped up in our research.

And then we looked at HR 214 that was

introduced in 2017, the American Fisheries Advisory Committee Act. This actually amends S-K and sets up a committee that would look at running the S-K grant program so to say. Setting the priorities, making the awards. So, that was introduced in January 2017. A companion bill to that, S.1322, it's almost identical to that but passed the Senate in 2018. It was introduced by Sullivan in June of 2017. The key difference between these two, which rings out for me here, is the first one that Don Young introduced, that committee is exempt from FACA. Under the bill that was just passed, it wasn't exempt from FACA. And as you all know, since you're on the FACA committee, there's a lot of extra process and public notice and it's more costly at least to the government in my perspective. So, that's the difference there. I don't know what the intent was or not, I don't know any of the background on any of this, but this was what popped up when I was looking at these topics. There could be more, but these were the ones that popped up in our research.

So, those are just some things to think

about. Just the things that popped up when we were trying to get some information to you all about what some authorities are, what's been used, what hasn't been used, and what some of the capabilities are in terms of the grant programs that we do have. So, just some questions to think about. Did the national council achieve what it was set out to do under the Efficiency Food Promotion Act? I found those pamphlets and that commercial. Did it achieve anything more than that? I haven't been able to find that. And why hasn't anybody used it to propose a species-specific council?

As I mentioned earlier, could it be that it's too costly, too much effort, or the structure of this industry isn't conducive to success? I'm not sure if that's an answer because over at USDA, some of those industries are pretty complex from what I understand, so comparable to the complexity of fisheries. Does it require too much coordination and analysis? And we do have some opportunities underneath the congressional intent under Magnuson and that fund and Sea Grant and the S-K grant program. So,

that's a summary of what we wanted to pull together. I don't know. We have a little bit of time for discussion if you have questions. I will try to answer them.

CHAIR FELLER: I have just a couple clarifying ones if I can just go ahead and ask them. You mentioned that when NOAA developed regulations that among other things, proposals from the industry would require NEPA analysis. Does USDA require that for their seafood promotion councils?

MS. LUKENS: No, it does not. Not explicitly. They don't have regulations. They have orders. It's not a regulation. It's very weird. But we do have a NEPA analysis in our regulations.

CHAIR FELLER: Okay. Are the USDA promotion boards or the ones that would be contemplated under the Efficiency Food Promotion Act, are they subject to FACA or are they considered to be holy outside of government and not subject to FACA?

MS. LUKENS: I don't think they're subject to FACA given that they're set up under

this structure and in these two specific statutes there for a different purpose.

CHAIR FELLER: Okay. And just my last quick question, I can't remember which national standard it is, but it's the one that says that conservation and management measures shouldn't discriminate among residents of the different states. Is there anything about any of these that says they have to represent the fishery, the sector, versus Texas Shrimp versus Louisiana Shrimp or something along those lines?

MS. LUKENS: I think I understand what you're asking within a promotion board or a council. I think it's governed by how they draft the charter themselves. So, it says species-specific, so whether they want to drill down to only assessing tax on one specific state's type of species, they would articulate that. I would think they wouldn't have a lot of money because the industry would be smaller, but how it's outlined in the charter really governs how those boards operate.

CHAIR FELLER: Kind of up to the proponent to say, "this is the scope of what our

council wants to cover."

MS. LUKENS: Yeah, and they put that forward to the secretaries and it's our job to review and make sure that it's accurate and that it makes sense and fiscally responsible in how they're spending their money. That's how it's outline.

CHAIR FELLER: Okay, thank you.

Robert?

MR. JONES: Thanks. So, I just want to make sure I understood. In part two, you mentioned that no one had applied for this.

MS. LUKENS: Correct.

MR. JONES: But in part one, I thought I understood that the appropriation through S-K had sunsetted in 1991. Is there a mechanism to collect revenue right now to do this if somebody wanted to apply tomorrow?

MS. LUKENS: Under this statute, you can't get money from Saltonstall-Kennedy similar to that. However, under our grant program, there's nothing stopping anyone from putting out a grant there to stand up some type of marketing board such as one person or several persons. But

the way the act is set up, the second part is industry funded, so they would do the assessment there. There's nothing to say right now that if you wanted to stand up a national level board yourself, to put in an application to S-K. That's something you could do. Just the S-K funding authority ran out after those five years.

MR. JONES: Just a quick follow-up, so in the national catch share standards, region specific, in the Gulf for example, there are standards for setting up an industry referendum to enter a limited access privilege program, is there anything in statute about referendum requirements?

MS. LUKENS: Yes, there's a bunch of details as to what type of assessment you have to go through, the process. You have to be able to prove that you've done an assessment of what that industry looks like. You've accounted for all of them and what your methodology is. If they're a big producer, little producer, how you're going to be assessing them whether it's on volume or on everybody in that industry gets the same type of tax. So it is pretty specific and it does



require a bit of analysis from my read of it.

CHAIR FELLER: Any other questions?  
Should we move on to our panel discussion?

MS. LUKENS: That's great. Thank you  
for not falling asleep after lunch. I appreciate  
that.

CHAIR FELLER: The video really helped.

MS. LUKENS: Yeah, it did. That's why  
I put it. I should've started off with that  
first there. So, we will move on. Thank you all  
so much.

CHAIR FELLER: Yeah, that would be  
great. So, next up, we have a panel discussion  
on elevating consumer confidence in US seafood,  
so we're going to hear from John Connelly, Linda  
Cornish, and Steve Markenson. And Laurel, are  
you going to facilitate this thing?

MS. BRYANT: I am not, but we decided  
we would just kind of as a segue to get everybody  
further into the seafood spirit, as you know I  
came and spoke with you in June talking about our  
communication strategy for 2019 as we continue to  
elevate US produced seafood, both wild and the  
issue of aquaculture. Every October presents us

with National Seafood Month and we really jumped in with all of our feet this year and put together what we call a splash page on our webpage. This is probably about the fifth year we've done this.

But this year we've really developed a lot of very rich content. Everything from fish watch, a new species that have been rebuilt, interviews with fishermen, etc. We're going to continue this on through 2019, but just to kind of set it up, I thought I would show you one of the videos that we did put together. And we did do some quick analytics yesterday, our staff put together. And it was really successful. Our video clips were viewed over 60,000 times and shared over 150,000 times. We had almost 14,000 views on the splash page alone, and certainly the use of social media has expanded it.

So, our staff is small. We're mini, but mighty. We continue to learn and the issue of seafood and US harvested and farmed fish is going to continue to be a big drum beat for us throughout 2019. And I'm happy to talk with the subcommittee later on. But we didn't want to

take any time away from these guys. So, they tell me all I have to do is click this and then it will play. (video won't play)

MS. DAVIS: Well, we can hear it just fine.

MS. LOVETT: Why don't you close Jen's presentation? Is that the problem?

MS. BRYANT: Nope.

MR. ESPINOZA: Are you sure you're on screen 2 and it's probably on screen one?

MS. BRYANT: Yep, that is true.

MS. LUKENS: Jeanette, why don't we hold off and we'll get our technical difficulties fixed and we'll show it to you all tomorrow? Because I've watched it and it's cool to hear, but it's cooler to see, too.

MS. DAVIS: Okay.

MS. LUKENS: Roger?

MR. BERKOWITZ: Thank you. Actually, if we could start with the panelists, and John if you would take five to 10 minutes and explain a little bit about what you do from a marketing perspective and then we'll go to Linda and Steve and at the end, we'll ask you some questions that

you can answer in sort of a round robin way if that works.

MR. CONNELLY: Okay. I got a little slightly different assignment, so I'm just going to go with what I have here Roger, and during the discussion I can talk a little bit more about what we do specifically in marketing. If you looked at your agenda, and Chris unfortunately has heard this too many times, but if you looked at your agenda right now, Non-committee (inaudible) session. There's about 430 minutes that you're going to spend together. 90 percent of that is in technical, 10 percent or less is in communications. And the communication session actually was the discussion of the promotion act. So, that was your communications and your planning session, as far as I can determine.

So, I think the way you constructed this agenda is an indication of how seriously you take communications and marketing. That's a bit of a challenge to you as a committee. Yesterday was a big day in the election, etc. but I'm not sure if people got the Washington Post or read it today, but some fairly stunning news in the

business section, Procter and Gamble announced that they've eliminated their whole sales force. And that's incredible. Procter and Gamble being the big consumer products company, because the CEO said we have such a strong brand and the brand's been around for 100 years, we don't need people to go out and sell this program anymore. We don't need people to sell Procter and Gamble. The brand itself sells that. So, that's an absolutely incredible move by the CEO of Procter and Gamble. Does anyone believe that happened?

The fact that you don't have a clue whether it did or didn't, trust me it didn't happen. But the analogy here is that Tim Gallidant said we have a strong brand, we are a science-based organization, we don't need to spend any of our 923 million dollars on communications because our brand sells itself. And that is essentially what is occurring at NOAA fisheries. There is a ton of money being spent, but no one knows it.

So, sorry for the Dodgers fans in the room, but I am from Boston so I had to bring this up. Mookie Betts on the left, Jackie Bradley on

the right, offense and defense. So I'm just going to talk very briefly about some examples here. So, this is a situation in New Zealand. I'm not asking you to think about New Zealand as the exact scenario, but it's how New Zealand identified a problem and went about solving the problem that's important here.

So, the industry itself looked and said we are having significant erosion in what had always been considered a premiere industry within the New Zealand population. New Zealand always felt very good about fisheries in New Zealand, seafood companies. But they saw significant reductions in levels of trust, believability, adherence to regulations, etc. He says, "We have a very significant problem and that's going to go to our license to operate eventually." So again, what I'm going to show you I'm not suggesting is the exact issue, but it's the analogy that I'm asking you to consider.

What they did is say we're going to make a promise, a very public promise. So this is the industry that developed this. You'll have these slides afterwards, but it's basically

saying we're going to do the right thing, we're going to adhere to laws and we're going to be very transparent about it. But very importantly, they went out and told people about this. They didn't just say we're going to make a promise and we're going to keep it to ourselves, but they made a very public statement about what they did.

And 49 percent of people said, "I have a better feeling about the New Zealand seafood industry as a result of being told about what the New Zealand seafood industry is doing." So hopefully you see where I'm going with this. If NOAA does a great job, and it does a great job, but no one knows about it, then you've lost half the battle and you've frankly ceded that responsibility to others to define what sustainable is and isn't.

So, that was the offense part. The defense, this is a screenshot of the Marine Policy paper that has generated a significant amount of news in the last year in which there was an allegation from these authors that I think 22 percent of all Alaska pollock that goes into the Japanese market is IUU. And that was the

first time that anyone has accused US fisheries of having anything close to 22 percent IUU. Certainly, no one has been claiming that the North Pacific council is operating a system in which 22 percent of the product going into Japan is illegally caught. No one has ever made that kind of claim.

So, Chris rightfully wrote a letter, at least in our view, saying that "We have thoroughly studied this." This isn't about a defense of the Alaska pollock fishery, but the demand for attraction here in the last sentence is an example in which NOAA stepped forward and said we have a process in which we spend hundreds of millions dollars, we have observers, we have regulations, we have enforcement, we have partnership with different parts of the federal family to ensure fisheries are well managed. And there's no indication that what you've stated is any place close to accurate and you should retract your paper in full.

This issue continues to even this week. There have been noises from the author about, "well, I've been travelling for a year and I



haven't had a chance to look at this." He's been accused of academic fraud. I'm not an academic, but if I were accused of fraud in anything in my life, I'd stop travelling and solve the problem. But this is an example of where NOAA stepped forward very aggressively to defend not a fishery, not an individual company, that would not be appropriate, but the process that NOAA has.

So, this is a picture from some Senate testimony. Actually, Stefanie was on this panel, Sam Rauch was on this panel, from the Senate Commerce Committee about five or six years ago. This is a point at which there was going to be a requirement to have some third-party certification of US seafood if it were to be sold in a national park. There were people around the country that took exception and NOAA took exception.

I was part of the panel and these are three quotes that I pulled from the testimony yesterday. This is in response to a question. "NOAA's fishery is generally excellent." Everyone agreed that it's excellent, but no one

knows about this. Left it to others to define it and when they asked what my solution was, I said, "Buy a printing press." Which is obviously a smart aleck thing to say, but it is essentially the message of the lack of communication by NOAA in any serious and ongoing way has ceded the issue of sustainability to others. So, if you want to know why people don't trust American seafood, it's because you do a fantastic job operating out of this building but no one knows about it.

So, if you want American or our overseas customers to want to buy American seafood, then you have to talk about American seafood in the excellence in which you operate this system and you have to do it not in the American Fisheries Biology magazine. My wife does not read the American Fisheries Biology magazine. What she reads is lay language magazines. She speaks in a lay language and she speaks in a language that you need to translate the technical work that you do into something that my wife can understand. She's beyond average, but we're just going to call her the

average American for the purpose of this. So, Roger, that's kind of my pitch here is a very strong plea to be much more aggressive and to have a much more significant effort in talking to the American people about the work that you do because it's excellent. But if you don't get that word out, then you've in my mind ceded that responsibility to others. Thank you.

(Recess)

MS. CORNISH: Hi everybody. I'm Linda Cornish. I'm president for Seafood Nutrition Partnership and I'll share a little bit of overview of our organization. So we are a national non-profit based here in Arlington, Virginia and our goal is to inspire a healthy America through a seafood rich diet and so our mission is to really address America's growing public health crisis through seafood and I'll show you a little bit in terms of what we mean by seafood for human health. And so, our goal is to reduce our chronic disease crisis and equip health and nutrition influencers to be empowered to recommend more seafood more often in the American diet. We do this by building

partnerships and many of you are partners with us in amplifying this message.

So just a quick overview, our Board is very broad-based. It's made up of seafood companies, Omega-3 company scientists, celebrities, and we have some of the top Omega-3 scientists on our board and they are experts in Omega-3, nutrition, toxicity, and Dr. Brenner who chairs as counsel also was on the dietary guidelines advisory committee for 2015. We have a team of ambassadors. They are also celebrity chefs, TV personalities to help amplify the message of seafood for human health and you might recognize some of them on here and just showing the infrastructure that we have a national leadership counsel of which, Ms. Laurel Bryant is a member of and those leadership council members help guide us in some of our work.

As I mentioned, many of you are members with us and so this is a broad-based public/private initiative and so a number of you are on here and we're glad to be partners with everybody that wants to promote seafood for human health and that includes sustainable seafood,

both farmed and wild, domestic and import, and, you know, our effort continues to grow.

So why seafood? I think it's important to understand the health benefits of seafood as we catch it, farm it. Since the 1970's there has been over 30,000 studies on the benefits of seafood and its importance on brain health and eyes and I think it's important to understand that 30 percent of our brain's functional units are made up of Omega-3 fatty acids DHA and moms who ate seafood compared to moms who did not had higher IQ's and so it's important to just really think about how we can help our future generation.

A recent study that the NIH and AARP did that was released this summer studied 421,000 people over 16 years on their seafood consumption. What was interesting is that seafood has been shown to be beneficial beyond just heart health. Women were shown to have a 38 percent lower Alzheimer's disease mortality, men 37 percent lower chronic liver disease mortality. So the strength of the signs on the health benefits of seafood is strong. It's uncontested

that Omega-3's are vital for the brain.

When we talk about promoting seafood for Americans to eat more of, it's important to understand what Americans are eating and so this is all available by the USDA and on average people eat about 1900 pounds of food. When we're comparing what we're eating, this is 2015 data, so it was 15.5 pounds of seafood per person per year and about 600 pounds of dairy per year. So I think, you know, when we try to understand what the American diet looks like, let's just not only think about seafood, let's think about what the overall diet looks like and what's that doing to our overall health. So this came out recently from the CDC just last month and now seven states have populations that are 35 percent or more that are obese. That's a dark red. It used to be just three states a few years ago and now it's seven states. The orange shows population 30 to 35 percent of the population are obese and so on.

So what does this mean? I think we're talking about budgeting and trying to figure out how to help promote a health America. Our healthcare spending per year is \$3.3 trillion and

90 percent of that is for preventable diseases and mental health conditions. So that's \$3 trillion we're spending a year to treat these diseases. You can count that, really narrow that down, to get about \$1 billion a year for heart disease that we're treating, but yet 800,000 people a year are dying from heart disease, so I think we're not doing something right and food is one of the -- a solution that we need to look forward to in seafood and the entire seafood industry is a solution to this problem.

This is a snapchat from our dietary guidelines. That's the current version that we're in, the 2015/2020. Only one in ten Americans eat seafood twice a week and so you can see in the blue bars, the left is for men by age, women by age, and our young people are the most vulnerable for not eating enough seafood for their brain development. I guess, you know, going back here, when you're thinking about promoting seafood and 90 percent of Americans are not eating seafood, think about rolling a new product out where 90 percent of the population do not understand what you're offering. And that's

where I think we need to begin building a strategy on highlighting why seafood's important, but if 90 percent of Americans don't understand what it is, we have a long way to go to make sure that consumption increases.

Our government measures everything. This is a -- we also measure how much Omega-3's we're taking in and we're supposed to get about 250 milligrams per day and we're getting about 90 per day. And again, kids are very deficient on Omega-3's and so Omega-3's help build the best brains possible and we need to do a better job.

And lastly, JAMA last year associated about almost 55,000 deaths that were associated with low seafood Omega-3's, so science is strong, we need a plan to take this forward.

I think you'll get a copy of this. I just wanted to show you a roadmap of where we are, how we got here. I was recruited by National Fisheries Institute about five years ago to start a non-profit from scratch that's independent to promote that seafood is good for human health and promote the dietary guidelines on a wider scale. And within the seafood



industry and within the fundraising leadership council, we were able to raise \$7.5 million to fund a phase 1 public health education campaign. So this wasn't modeled after a marketing campaign, but we use many of the tools to do so and so we started with a couple of pilots that were in Boston, Indiana and Memphis, Tennessee. You saw where the obesity crisis was greater, that's also where heart disease is greatest, diabetes is greatest, and so we wanted to go straight to the heartland in the south to try and figure out how we can be helpful.

So over this last three years we generated over about 3.7 billion outreach impressions that were positive for seafood. About 50,000 people took the pledge to eat seafood twice a week and that pledge is very important. It was a call to action that was specific. It was simple and people could actually understand what they should be doing versus eat more seafood when they didn't even know where to start. And our study is nationally and also other research have corroborated that one in three Americans are trying to eat seafood more

often to be healthier. Seafood has a healthy halo and we need to take advantage of that.

So, we're in our next phase of planning for our next public health campaign and I'm happy to show more details about that. Phase one, these were the companies that came on board to help us with our public health campaign, many of you recognize them, and it's important to know that it's not just from the seafood industry, we also had funders from Omega-3's foundations, companies, these are our annual supporters and we're proud that Walton Family Foundation recently funded work to -- as we reached out to dietitians, they saw that we were being very effective in reaching dietitians or health and nutrition influencers for the American public. So overall, we've reached 22,000 dietitians. There are 100,000 dietitians in this country and they are the trusted health advisors for people to go to when they want to eat more seafood. So if you want to see the resources that we prepare for them, it's at [seafoodnutrition.org](http://seafoodnutrition.org) and, you know, seafood is trending, but our budget is about a million to a million and a half a year

and so avocados, the budget is about \$53 million a year and so I think if we're serious about this, we need to think about how much it's going to take to lift consumption.

This year alone we are learning more and more so this year alone we're going to surpass 3 billion impressions, so we're on all social channels that people are looking at and our reach to dietitians this year has been 4,000 dietitians plus and people are using our hashtag, #seafoodtwiceaweek, to get the message out more often.

This is a map of where the people have taken the pledge, so if you have not taken the pledge go onto [seafoodnutrition.org](http://seafoodnutrition.org), sign up, put your zip code on, and I hope to see some of you on here. We're tracking it, so we know. So seafood is trending. A third of food service operators have noted that seafood has increased their sales by about a third and the mealtime that's increasing is breakfast. Most of the time seafood is eaten at dinner, lunch, but breakfast is a new category that's starting to happen and when they surveyed consumers, this is from data

central, why consumers eat seafood? It tastes great. That will always be the number one criteria for consumers. It tastes great, but it's really good to see that they think it's healthy because that's what we've been trying to promote as well.

Lastly, you know, as we were talking with just communities, health and nutrition influencers, one thing that I think, as more and more climate information comes out and environmental impact studies come out, that seafood is a sustainable protein for the future. We can be proud of the fact that seafood is going to be there to feed nine to ten billion people by 2015 and we share the fact that the U.S. Fisheries is managed by NOAA and it's the best managed fisheries in the world, that Alaska has sustainability in its constitution, that globally the environmental (inaudible) has shown that if we managed our fisheries as we have and continue the progress, we can double our fish (inaudible) within ten years.

And lastly, I do agree with John, we need to promote the good news, so the

Conservation Alliance for Seafood Solutions, which is a group that brings together the different conservation groups, had a report that show that 80 to 90 percent of retail and food service operators had a sustainable seafood policy in place. Now this is important because most consumers are wondering, is it okay to eat seafood? Are we going to overfish our oceans? Is farmed okay? I mean, those are the questions we get. And yet, they don't know that the seafood buyers and the operators are working so hard to make sure that there is sustainable seafood for sale to eat and to have for them to enjoy.

I'm going to flash this, I know, I think we have a little time, but I just want to show you just a little bit of behavior change research that we use as we embarked on this campaign. So, important is -- I think the important note is, meet the consumers where they are. So you really need to understand who you're trying to get to before you deliver a message to them. So this was an example of women 35 to 50 that we reached in Indianapolis and Memphis and

they ate seafood a little bit, they had some heart disease, but 88 percent of them liked seafood and 49 percent of them liked it better than pork, 35 percent liked it better than beef. They're actually kind of bored with chicken and so they really think that seafood is special and they wanted to find a way to get there. And so, I think that you can see it's some of the top seafood motivators there.

When you want to understand these women, they put themselves last, so if your target audience is the household food decision maker then you need to understand the women. They put church, family, and financial stability before themselves. The first three can be in any order, but they want to make sure that whatever they bring to the table is delicious and that their families will eat, even if they like it they want to make sure their families are on board. They have different life influences and so you need to understand, I think all of us need to understand and this changes with, you know, different geographies and different life stages, but we need to understand who's influencing them

and how to make sure to get their message to them.

This was repeated earlier, but people love seafood. I think they do want to give it more of a try, but the cost of seafood is a barrier, knowing how to prepare it, do their families like it? The taste of it? Knowing how to find it in a grocery store. Two points here, cost is not the only obstacle. I think that people think that cost is a major barrier, but beyond that it's, you know, these women would buy seafood since they understand it's so good for them, but they have a barrier of knowing how to prepare it, what their families like, their taste, and the knowledge of different species. There's 500 commercial species available for purchase. Where do they start?

Then the last one knowing how to find seafood in the grocery store. We had a small group at first with 20 women in a focus group and we told them to go in the supermarket and look for seafood. They came back and wrote in their diaries and they had to say -- we had to ask them, where is seafood located? It's huge. It

says meat and seafood when you walk in, but if you're not a regular seafood eater you won't find it. So we need to breakthrough people's consciousness.

This is just showing how easy it is to develop the habit of eating seafood twice a week. It goes from easy to difficult. Their knowledge of seafood from not knowledgeable to very knowledgeable and this is too little to read, but basically it's just a recommended message flow of connecting with the consumer. Meet them where they are. I know we want to show them all the great things about fisheries and agriculture and all the great benefits, but is it delicious, is it good, will my family like it, is their top consideration. So thank you very much.

MR. BERKOWITZ: Steve Markenson of the Food Marketing Institute. Thank you.

MS. DAVIS: I don't know why it's doing that.

MR. MARKENSON: I don't see it on that list. I saw it on the screen.

MS. DAVIS: Here.

MR. MARKENSON: Yep that's it.



MS. DAVIS: So you're eight.

MR. MARKENSON: There we go. The fish were hiding. We found them. Good afternoon everybody. I am Steve Markenson from the Food Marketing Institute and if you're not familiar with the Food Marketing Institute, we represent food retailers and one of my roles there is to do research and we do a lot of research. I don't know if anyone is familiar with the research we do. We do our U.S. Grocery Shoppers Trend survey every year. We've been doing that for over 40 years. We do our Food Retailer Industry Speak survey, which is from the retailer's perspective, what they're doing. We do lots of specific surveys.

Right now digital shoppers are a big focus, food labeling is a big focus, and we also have what we call our Power of Series. About ten years ago we first did the Power of Meat, then we did the Power of Produce. We are in the process this year of adding about four new ones, the Power of Bakery, the Power of Frozen Foods, and we couldn't leave out the Power of Seafood, obviously, and that's what I'm going to share

with you, just a brief overview of the survey. It is in the development -- or it's in the analysis stage right now. It will be released in total after the first of the year and I'm just going to give you kind of a quick snapshot of some of the findings and how we go about doing our research.

So, just keep in mind this is from the shopper's perspective, a shopper's eye view of the industry and what folks think about it. The way we go about doing our research, we do two things, one, we obviously doing surveys with consumers and getting feedback from them. This data I'm going to share with you is based on over 2,000 surveys with consumers. We also rely on some of our partners such as Nielsen and also IRI to overlay some of that with actual purchase behavior. So we get perceptions and we get actual behavior and look at that. We also do a lot of discussions with the industry and I'll explain that in a little bit here where we get their perspective on it and help in terms of development of the whole survey that we're doing.

This is the first Power of Seafood,

well past due obviously, (inaudible) survey that we have done. One of the things that we always start off with when we do these Power of Series or any research we do, is we want to talk to the industry and get the industry's perspective. The first two on the list here are familiar, the previous speakers and we also try and convert from different perspectives, from the supplier side, from organizations such as Nielsen, IRI, and others in the industry, companies like McCormack that does a lot of spices and stuff related to seafood, and then obviously we represent a lot of the supermarkets out there, so we definitely, ultimately, are looking at this to help them promote seafood and what they can do to help with their seafood sales and seafood department and you can see the mix of retailers that help with the process. So more in the mid-west where seafood may not be -- is a little bit different in terms of the seafood they might have to public in Florida and the southeast to level those up in the north. So we kind of make sure we cover all the different perspectives in terms of getting input.

We explored a lot of different areas in terms of the survey. I'm just going to be touching on some of the kind of overview of each of these sections and kind of think about this as a who, what, why, and where of seafood. I'll share a few slides with you about the market for seafood and get an idea from the food retailer's perspective. How much they're selling and what's in the seafood basket in terms of what's being sold, where to shop for seafood, very different than some of the other departments that we've done research on within food retail, how are they shopping relevant to what was just discussed, some aspects of educating, and how lacking in education a lot of consumers feel that they are.

On the retailer's side we explore some things related to the seafood counter and the existence of the seafood counter and what people expect from the seafood counter, and then how to generate trial and some aspects of nutrition, health, and sustainability. So I'm going to give you the quick overview of what we've discovered.

First of all, from the food retailer's perspective, this is data from Nielsen as of

September for the past year. You can see if you include fresh, frozen, and grocery, which can be canned and pouched seafood, about a \$12 billion share of the market in terms of what's generated and you can see over the past year the food retailers have seen increases in both dollar and unit sales for fresh and frozen and dollar sales on the grocery side of it, but not necessarily unit change on the grocery side of things. So just getting an idea there in terms of what the market is.

MR. CONNELLY: Can you just explain what grocery seafood is? An example of grocery seafood.

MR. MARKENSON: Grocery seafood would be canned, pouch, jar, any -- shelf stable. Think about it that way. Fresh -- and actually to be clear even on the fresh side of things too, fresh seafood would be from behind the seafood counter or prepackaged, but not frozen in the case. So it's self-serve if you think about it that way and then frozen, obviously, in the frozen food section.

MR. CONNELLY: Thank you.

MR. MARKENSON: One of the things we went about -- one of the things that's different about seafood from some of the other studies, meat has basically, in terms of household penetration, 99 percent penetration, produce 98 percent penetration, I can't imagine anyone who's not eating produce, but apparently it's not 100 percent, but seafood, obviously, a little bit different.

So we went about the whole study in terms of not just wanting to talk to folks who are already, you know, eating the seafood in terms of things, so we wanted to look at a board -- so we looked at consumers in general here and you can see, you know, poultry and meat, obviously, the way we measure this frequent is at least two times a week and you can see poultry and meat, vast majority of folks eating meat or poultry at least two times a week, but when it comes to seafood the criteria for two times a week, USDA criteria, frequently, only 21 percent fell into that category.

We had another group here that falls in the middle there at 35 percent were at least

eating it once a month, but not two times a week so we called them the occasional consumers. But on the other hand, the downside of this you've got 44 percent there who are not eating it even once a month.

So a lot of opportunity to convert folks in terms of seafood. We wanted to look at who those seafood consumers are, so from a retailer's perspective who they can be attracting and who they are attracting in terms of folks that are eating seafood and the seafood consumers are definitely a very valuable demographic segment. They tend to have much household incomes. They do tend to be boomers as opposed to millennials, but when we look into the data a little bit more there is a segment of millennials out there that are actually fairly heavy eaters, but overall the millennials as a group are not as heavy eaters of seafood. Interestingly, more likely to be male, also college graduates, and also not having children in the home and living alone tend to more likely to be the seafood consumers.

So there was a discussion earlier about

children not eating seafood definitely comes through in terms of that. Also in terms of their shopping behavior, again very lucrative group to appeal to if you're a food retailer. They're spending much more per week. On average they're spending about \$129 per week. The frequent seafood consumers are spending over \$140 a week on seafood and that's compared to an average of about 116 for the rest. So obviously very lucrative there. They also shop more frequently, at least two times a week and probably very focused on fresh foods and things like that so they're going a little bit more often. They also -- (inaudible) data here, they're also very likely to be shopping online for groceries, but let me be real clear, they're not shopping online for seafood, okay. They are shopping online for groceries though. The frequency food folks are eating two times a week almost half of them are online grocery shoppers compared to those who are not, only 22 percent. But again, we found that only 12 percent had ever purchased seafood online so that -- it's more about the shopping for groceries.



So in terms of -- from our retailers perspective we talked to them about that's a great way to communicate with that audience because those are the folks, but they may not be buying it there. Also the seafood consumers are also much more likely to be shopping at a supermarket as their primary market as opposed to a supercenter or a club type of store as their primary store. So they're much more likely to be shopping at a supermarket.

What's in their basket? You guys probably know these numbers and some are from a food retailer's perspective, 28 percent of the sales is shrimp, salmon's 20 percent, tuna's percent, but as we talked about there's a lot of other stuff out there. That doesn't even account for barely 60 percent of the market there, so there's another 40 percent buying a variety of other things.

It's also interesting, if you look at these top three, shrimp is very much a frozen food sale in terms of where the bulk of the sale is, salmon much more fresh, and tuna the grocery shelf stable type of aspect, so three leaders

that are kind of doing three different things in terms of getting into the consumers home.

Where do they shop for seafood? This was interesting in many regards here. We found that primary grocery store was not necessarily the same as your primary seafood store. More than 30 percent of the folks said, where I go for my groceries is not where I buy my seafood necessarily, okay. Compare that to our meat study, not to make the comparison to meat necessarily, but that was much lower with the meat folks. The meat folks are more likely to get their meat at the same place they get their primary groceries.

Where are they going? A lot of them are going to other grocery stores. We found from our trend survey on average the consumer shops at least three banners, not stores, but banners, three different types of stores in a typical month. So they are shopping around a lot, so they maybe buying their groceries here, but go buy their seafood at another grocery store or a supercenter or other places.

But even further, was interesting to

us, their primary seafood store, only about a third of them buy all their seafood there. So they're further shopping another place for more seafood. Where are some of the places they're shopping? Again another supermarket definitely comes up there, but then if you look at this list, that's a lot of other places and this does vary where you are in the country, obviously. You have seafood stores, little bit of club stores, farmers markets, we have this group kind of seafood stand, seafood mongers, obviously if you're near water that changes things. Natural organic stores even 11 percent down to ethnic store is 5 percent. So they're doing a lot of shopping around a lot of places, they're going to meet their seafood needs and find the seafood they're looking for.

With that in mind, one of the questions we wanted to find out, are there enough options for them. And keep in mind the seafood shoppers are shopping lots of different places, but they do say there are enough options available, but again they're going lots of places to meet their needs in terms of the shopping.

How do they shop for seafood? We wanted to ask some questions in terms of how adventurous they might be in terms of their shopping. We asked, when your shopping at the grocery store for your -- or wherever you might be shopping for your regular seafood for your home, do you buy the same type all the time? Do you tend to buy a few different types, but kind of stay within in your mold or do you try and search for a variety of different types? And you definitely have some folks that are kind of in that same type mode. You got another group there that do mix it up a little bit and about a third do a variety. Now keep in mind that these are the folks that are already buying seafood, that 54 percent we had or 56 percent that are already buying seafood. So they do mix it up a little bit. They are not as eager necessarily to try different types of seafood though. They're not real gung-ho in terms of trying things. They kind of have their comfort zone.

One of the lines of questioning a lot of the retailers wanted to find out was the role of restaurants and how adventurous folks would be

and you can see here we asked basically a similar question, when you go to a restaurant do you typically buy the same type, buy a few different types, or do you do new and different things? And you can see people tend to be much more adventurous on the restaurant front. They're willing to try new and different things almost four out of ten. We followed that up with the line of questioning about whether they had tried to recreate the restaurant experience at home and 77 percent said that they indeed had tried something at home that they wanted to try at home and 55 percent had actually gone and tried to make it at home. So restaurants are a great way for folks to get ideas as to what they might want to be making at home. So restaurant ideas or recipe ideas or whatever the case might be.

Seafood also is very different. I hate to keep comparing to meat, but that's that the one study we've been doing for like ten years and a lot of these questions are very parallel. Meat is very much a price sensitive type of decision, but what we found here, we asked people to rank the top three most important things for them when

they are shopping for seafood. Product quality clearly comes out number one, so they are very quality oriented. Taste and flavor right there at the top. You can see a few price measures and, of course, if you ask people about price that's always important to them, but it was not as high as product quality. The type or species are also important.

One thing we found interesting that people did not rank things such as knowledge of how to prepare and preparation time and ease as that important to them, but definitely quality is very much a focus for folks who are buying seafood.

Getting into the education aspects of things. We asked people on six different factors how knowledgeable they felt about seafood, how to buy it, how to cook and prepare and flavor it, the nutritional benefits of it, how to know freshness and quality, the different types and species, and the different ways and methods to cook and prepare. You can see only about a quarter to 29 percent are saying that they feel that they're very knowledgeable. These are

people already eating seafood and they're not feeling knowledgeable about the process, about all of these different steps along the way.

We followed that up with the question among the seafood consumers, do they want to be more knowledgeable and they are hungry for more knowledge. We had more than eight out of ten saying they want to know different ways and methods to cook it, how to prepare and flavor it, and how to know freshness and quality. So these are things they really want the information on and, you know, they're really starving to learn more.

We also had -- if recall we talked about the non-seafood folks, we haven't talked much about them. We asked those non-seafood consumers, these are people eating it less than once a month, do they want to be more knowledgeable about seafood and those folks even, almost half of them and at least four out of ten there on all of these different factors saying that they want to be more knowledgeable about seafood. So they really are looking for information, looking for knowledge, and they want

to know more.

We asked about some of the different recommendations about seafood and whether folks were aware of them. The recommendation for eating seafood at least two times -- I didn't put all the words here because it wouldn't fit with the font size, but I think everyone knows what most of these are. Recommendations to eat a least two times a month, just over half of the seafood consumers were aware of that. A lot of folks not aware of it. The non-seafood folks even less aware. FDA advises seafood is good for children's growth, only about half aware of that. Guidelines that it contributes to healthy diet. Similarly FDA and EPA reports about mercury levels, still there's a lot of misconceptions out there about mercury and that comes out in a lot of the other parts of our study too and studies show that seafood has a little carbon footprint, even less awareness of that. So a lot of lack of awareness in terms of those things.

We asked about a bunch of questions about the seafood counter and I'm not going to bore you guys with this because it's more for our



retailers, but I thought this was one point that I wanted to make. We asked the consumers what they would like to learn, what information they'd like from their seafood counter staff if they were asking questions and you can see this is kind of like a checklist for them, things that they should have at the seafood counter, but freshness and quality again, it's important to folks. They want to know how to evaluate it and what the freshness and quality of what they're buying is, where it's from and you can read down the line there, prep advice, recipes, how to select, nutritional benefits. There's just a lot of information they would love to have available to them when they're in the store and this is obviously something that we're sharing with the retailers so that they can make that available because a lot of them -- that information's there, they just need to make it more available to them.

A couple more slides here, role of nutrition and health and sustainability. We asked folks how important -- how much effort they put into eating nutritious and healthy food in

general and you can see the seafood consumers on the left as opposed to non-seafood consumers are much more focused on health and nutrition, 87 percent versus 77 percent and a high proportion of the seafood consumers put a lot of effort into their selection of seafood based on whether it's nutritious and healthy.

Sustainability, a little bit less in terms of there's -- if you look at the data there's kind of this small niche out there that does care about it, probably about 25 percent or so of the population, but you can see the seafood consumers do put a little bit more focus than the non-seafood, but in general sustainability is not high on folks list in terms of their decision of what seafood they're going to purchase.

The certification and standards, very low familiarity of what the different accreditations and certifications and standards out there. You can see the orange bar being the seafood consumers and as you might expect the non-seafood consumers even less aware of it, but only about one in ten aware of most of those different options out there.

Fair trade comes up a little bit, but that's more of a -- I think more of a generic label than some of the others might be. And we didn't just use the letters, by the way, we explained what each one of these were. We just shortened them for here.

We had our kind of 12 key findings. I think I've hit on most of them in terms of the discussion here, but definitely seafood represents a small, but lucrative -- seafood consumers are smaller, but lucrative demographic group. As I talked about, they definitely shop around for their seafood and go lots of different places. Restaurants are a great avenue to expose folks to different ways of cooking seafood and a lot of them do bring that home with them. We talked about quality, freshness, taste, and flavor being of high importance and on down the list here.

So that's kind of the summary of the study. The study will be coming out in full after the first of the year and will be presented at the Boston Seafood in March, it will be presented there in full. So, any questions?

MR. BERKOWITZ: Steve, thanks for that advanced look in terms of what's happening. It seems in terms of a theme, education or lack thereof, seems to really underscore everything. So one of the things we heard -- when Jennifer Lukens did her presentation, we heard about the Fish and Seafood Promotion Act of 1986. And underneath that was a National Fish and Seafood Promotions Counsel that was actually enacted and then sunsetted, so hearing that, and some of you may have known of that ahead of time, how do you respond and do you think that there might be a need for something like that given the lack of education out there and I'm just going to throw it open to the panel.

MS. CORNISH: Yes, Roger, there is a need. I think a lot of people compare the seafood industry to the different campaigns that are available for some of the other commodities groups. I'm going to stand back and so it takes quite a breath of resources to communicate the benefits of eating something and to build awareness of a food and we do need some mechanism to bring more resources together. It's -- I

think with seafood promotions it's a voluntary assessment and so I'm not sure how voluntary the company -- each company would be if it's voluntary, it would need to be some required assessment, but whichever mechanism we use, I think, it would be beneficial for the industry to have a fun to market seafood.

MR. BERKOWITZ: Actually the check-off programs are not voluntary once the industry selects to do it. So the industry has to vote themselves the tax and then it becomes a mandated tax, but the question is, what's the industry? So I didn't hear anything about the fruit industry. There's no fruit industry promotion counsel. There's the avocado counsel. There's the raisin counsel. There's the apple counsel, et cetera. There's not a fruit counsel.

So when you talk about the seafood counsel, what is the seafood industry? Roger, is it you or is it Steve? We have a restaurant, we have a retailer. Is it Trident or is it an importer of shrimp? Is the lobster industry in Maine or is it the farmed scallop in Maine? So the question of what the seafood industry is, is

a major question and how you define that is one of the challenges.

So people talk about the seafood industry and analogize it to the beef and pork and other big counsels like that, we are more like the fruit and vegetable industry than anything else. Where it's fresh, frozen, shelf stable, and chilled. It's import, domestic, and there are 10,000 varieties. There are 14 cuts of beef and we are not the beef industry and certainly the fragmentation of the industry. I think there are four companies over a billion dollars in our industry in the U.S. A billion dollars wouldn't -- you couldn't feed a big picnic of hamburgers for a billion dollars. It's just we're a different industry than the others. So those are some of the challenges.

MS. CORNISH: For the fruit industry there is another non-profit like ours called the Produce for Better Health Foundation. So fruits and vegetables like seafood are some foods that Americans need to eat more of for better health, so we're the two that have charitable non-profits versus beef, chicken, pork.

MR. BERKOWITZ: We'll open it up.  
Sebastian, did you want to jump in?

MR. BELLE: I just want to reinforce what John just said. I think that is the fundamental difference between our industry and some of these other check-off programs and, you know, the idea of a promo counsel have been around for a long time. I am, I think, inherently an optimist. I got to believe there's got to be a way to work around that challenge and figure out how to create an entity that would promote seafood consumption in some way, shape, or manner and, obviously, the work that Linda is doing is, I think, helping along that line. So it's really great.

I guess one of the questions I have for the panel is, at least from the producer's side of the house, we don't appear to be having any difficulty selling our products. It's -- they're flying out of the farms and we're getting pretty good prices for them right now, but the license to farm and the linkage between public perception around controversies around seafood and our ability to get licenses to farm really is for us

the issue and so I guess I would ask the panel a little bit about what their thoughts are on how a seafood promotion campaign, if you will, might get at some of those domestic issues and our ability to kind of increase the sector?

MR. CONNELLY: Certainly, Sebastian, from our perspective we don't need a lot of problem -- we have gotten rid of a glut of Pollock that existed, excuse me, a lot of Alaskan Pollock, genuine wild Alaskan Pollock. If you haven't heard Stefanie give you the WAP thing she will. But product is -- there's generally not a glut of product right now and so when you ask producers to invest in promoting a product that they're not having trouble selling and they're making good money they say, kind of, why would I do that?

To the second question or the second point, it was -- hopefully what I was trying to drive at was in eliminating some of the perceptions and I would say they are largely perceptions, not reality, about how fish is produced whether it be at the farm level or caught in the wild level, is a challenge that



NOAA should take on and I think it has a responsibility to take on because again, the staff here throughout the broader commerce department, through the counsels, and with all of the other regulatory agencies that oversee the industry, they do a phenomenal job, but it's just not known and so if you ask a lot of people they say, yeah we're catching lots of fish in the ocean or I have no idea whether USC food is any better than anyone else and we represent both domestic and imported products, but it's just a lack of understanding about how rigorous this system is and the results that occur.

MR. BERKOWITZ: Chris?

MR. OLIVER: Yeah I have a question for the group and for the panel. I was really surprised in Steve's presentation at the, I think it was 15%, the sustainability index. I was really surprised at how low that was in people's minds and trying to reconcile that with the importance that seems to be placed on, at least by some retailers/wholesalers, the importance placed on the sustainable certification labeling and this gets indirectly to your point, John, so

I'm really struggling reconciling that.

MR. MARKENSON: I think consumers, the lack of knowledge about so much in terms of seafood is clearly there and in looking at the data there's a small segment out there that cares about sustainability, but it's a pretty small segment, 15/25 percent, whatever it might be and I think sometimes with some of these things it's not that it's not important, but it's the squeaky wheels you hear about and hear from a lot in terms of what they're thinking about. But in terms of just a little bit -- in terms of looking at what consumers are looking at there's so much more that they're trying to understand about seafood, that's kind of much lower down on the list, you know, from all the different species, from what's quality, from where it's caught, I think there's just so many different, I guess, dimensions to seafood for them to understand. That that's just not on the highest part of what they're looking to understand.

MR. CONNELLY: Right and if you look at -- there are 325 million Americans. Think about how much money Proctor and Gamble, which still

does have the sales force -- I actually gave a presentation like that and I talked about a purple fish and one of our members started to ask me about the purple fish. So please don't go out and say that Proctor and Gamble fired their sales force, but think about how much money Proctor and Gamble or Coca-Cola spends on advertising to get to us to act and behave a certain way. So to think that we as either an industry or others are going to try to reach 350 or 325 million Americans is very difficult. However, if you could reach 325 buyers, if you can reach Steve's members or the restaurant association members or the choke points that really decide what's available to us, that's what matters and again, if you want an idea we don't agree with Secretary Ross with everything, but the guy can spell the word fish, which I don't mean to demean former secretaries of commerce, but there haven't been many that could spell the word fish and this guy is all over seafood. And so to have him, I would not -- not just saying imports are bad, but go ahead and write to the retailers and say, you want to do something right buy U.S. Seafood.

And I don't mean to, again, demean Chris or Laurel or anyone else in the room, but Laurel Bryant's not going to get the CEO of AHOL to pay attention. A letter from Secretary Ross is going to get some attention. So use him. He's interested, I mean, he had an article in Bloomberg this week in which he talked about NOAA being central to his work.

MR. BERKOWITZ: Steve, thank you. Steve, just a follow up, you had mentioned sustainability didn't really show much on the radar. Would you say the same thing about traceability? Is that in the same realm?

MR. MARKENSON: Yeah I would say pretty much the same realm, yeah.

MR. BERKOWITZ: So sometimes I think we give consumers, perhaps, a disproportionate amount of credit, you know, in terms of some of our decision making.

MR. MARKENSON: Yes.

MS. CORNISH: I think in terms of sourcing the consumer is relying on their retailer and food service operators to do the right thing and so, you know, it was shown in

that Conservation Alliance Report that, I think, sustainability is important and traceability is important for the B to B side, so the retailers are buying sustainable seafood. The consumers just don't have the control when they get to the fish counter to figure out which one's which and so they really need to just rely on their -- the reputation of the retailer.

MR. MARKENSON: Yeah there's a much higher -- last year's trend study showed there's a much higher level in trust in their primary grocery store, the retailers among consumers than there's ever been. And, you know, it's almost like if it's at my grocery store, it's at -- whatever a Giant or Safeway or wherever you shop or wholefoods or whatever, if it meets their standard that's where I'm comfortable and, you know, I don't know that they look much more under, what do you call it, under the hood or whatever in terms of what's going on after that.

MR. CONNELLY: Specific to that issue though of -- I go back to that senate hearing in which, Sam, you were testifying and you said when asked, in the policy statement, as I understood

it was, if it's a U.S. caught seafood it is sustainable. That is a simple succinct message, if it's a U.S. caught seafood it is sustainable and that message is just not heard, but it was certainly clear that day to me.

MR. BERKOWITZ: Okay we want to open it up to Laurel.

MS. BRYANT: So to that point, John, I totally agree and one of the things that we are trying to do, I do sit on the advisory council for a food marketing institute, also with Linda's group and we have been working this last year to really work directly with the retailers. We have -- that message is our number one message. We're a global leader in sustainable seafood. If it's U.S. you can buy it. We have that all over. What we don't have is that consumer interface and getting people to come to our website routinely.

So we really are trying to strategically work with these third party folks that do have that consumer interface and expand our partnerships to really nontraditional. Linda really gives us an entrée into dietitians and nutrition. So we're hoping and I think it is

starting to work, but to John's point, absolutely, we have to get that message out there. Consumers don't come to us so we are really trying to go to those places where consumers do go. Thanks.

MR. OLIVER: To John's point and you reference what Sam said, I mean we can use that printing press to print labels that say U.S. caught sustainable seafood, but is it my understanding that it's not -- is it more the retailer/wholesaler nexus that needs that message than the individual consumer.

MR. CONNELLY: I would say you have opportunities in two ways. Let's start at the chokepoint, which is Steve's buyer members or the distributor members and when they deselect, when they say, I'm not going to buy monkfish because it's overfished, I don't think Laurel Bryant going to the buyer at an FMI meeting is going to make a hill of beans. I think Secretary Ross writing a letter to the CEO of Kroger and, Steve, I don't want to put your folks in a jam, but I think Ross writing a letter to the CEO of Kroger saying, I understand -- and I'm not suggesting

that Kroger has done this, but if they did, Ross writing a letter to the CEO of Kroger saying, I spend \$923 million in fisheries management. I have 400 observers on vessels. I have all these things and you are telling me you're not going to sell monkfish because you think it's not sustainable? Tell me what you know that I don't. And that's going to get a response from the CEO. If you try to go to the buyer level it's just not going to happen.

To the second part of it, Chris, the consumer -- the printing press is very expensive press, ala Coca-Cola, and however, I do think there's an opportunity for NOAA leadership to, on a more regular basis, talk through traditional or social media in lay language. So it's not always waiting for when there's damage to be done, but more proactively going out and talking about what work's being done. I'm kind of bummed that we couldn't see that video of Chris Brown, but the other kinds of work either by fisheries managers or others that just explain what you do and put it out in a social media way that gets, not just 60,000 hits in one month out of the year. okay we



done that in October. It's now November. What are we doing right now to tell my wife who's not going to read the Fishery Biology Magazine that you're doing. So, I think there's two sides of it, Chris.

MS. CORNISH: So our outreach to dietitians, we do emphasize that the U.S. fisheries is the best managed one and it's managed by NOAA. When we state that to dietitians they accept it immediately. They said, of course, the U.S. is the number one and so how that shows up afterwards with media dietitians is in articles in Men's Health, Women's Health, and so they take that knowledge and then they distribute that and so we just more resources to amplify that information, but when you state that U.S. seafood is sustainable seafood people believe it.

MR. BERKOWITZ: We'll open up for questions, Stefanie?

MR. OKONIEWSKI: Thank you. Mike Okoniewski, Pacific Seafood, MAFAC. John, what you said really resonates. It reminds me of a story I heard from a good friend of mine who has

a pretty good sized seafood company and he got on a plane. He's fairly well off sitting in first class and not a bad looking guy and this lady sitting next to him says, you know, what are you going back down here for and he said, well I have to get back down to my plant for -- we're starting up the season and they started talking and she said, you mean -- going to California. She said, you mean they're actually out there still taking this fish out of the water and she couldn't believe that they were still allowing us to do this and there's so much disinformation out there about our seafood programs and so the message I don't think is getting conveyed adequately. And I know that Laurel and others have done as much as they probably can, but it's still not penetrating and sometimes it's just a matter of disputing disinformation that's out there. I'm not going to say where it comes from, but I think in some cases you know, but we do have the best managed fisheries in the world and yet the message is not getting out there far enough.

California has 35 million people and

yet for us on our ground fish program we barely penetrate it. And they've lost their trawl fish largely. So, you know, it's -- your points are well taken.

I would say that from what I know of it and I'm not a marketing guy, I've done some sales, but I think it's the customer, not the consumer, that's more interested in a sustainability at this time because they're worried that they might be attacked by disinformation campaign or this being flat out wrong about some type of fishery that's using bad practices. And so they like that guarantee that there's some kind of level of security in knowing that, you know, they have a sustainable program of some type.

What you just said, I mean, yeah I think having those labels out there would be a good thing. I mean, if it's a NOAA blessed program it should be sustainable from everything I've read, but there's a lot of people that just don't understand that. I'd say the vast majority. I think when we're talking about marketing there are some products and I think

scallops and lobster are probably some of the stuff we sell too. The easiest stuff to sell is when people are calling you for the product. The hardest stuff to sell is when you're calling them to sell the product. There's a lot of underutilized species and whatnot and we're not harvesting at this point or just that could be developed yet and I think would have good markets in the end. They are sustainable under fisheries management plans, but those are where we could probably use some help. I think there's been some out there -- some effort made, but there's a lot more to do.

We're pretty small compared to like the red meat industry and chicken and that and we got a variety of products that is off the scale. So there's a lot of information out there that could be brought to the table. I'll just let it go at that and thank you for your presentations. These are good conversations.

MR. CONNELLY: If I could, Mike, and just to reemphasize the letter that Chris sent last year in response to this Marine Policy, I believe was the first time that NOAA fisheries

sent out as forceful a response to just a flawed paper, flawed methodology, bad data, so much so that a group of academics accused the author of academic fraud. That's a very strong message from NOAA fisheries that we are going to defend ourselves and people have different strategies in communications, but I think that the fact that if NOAA continues to defend it's process, it's not defending companies, it's not defending specific fisheries, it's defending the process that Magnuson and the councils and NOAA and commerce will oversee, it makes it harder for those, you call them disinformation or bullies or whatever to continue to put it out.

So I'd encourage NOAA to do exactly what Chris and the team here did, which is step up and say, you're just flat out wrong. I mean, that was a strongly worded letter. If you have not read that it would be important to see because I think it's an indication of how strongly the building here took some accusations about this agency permitting illegally caught fish to be sold in Japan.

MR. BERKOWITZ: Alright, thank you.

Stefanie, then Sebastian, Robert, and Matthew.

MS. MORELAND: I just want to speak a little bit to the recommendation that John keeps circling back to on role of government and asserting strength behind management and some clarity that there's defensibility behind U.S. fisheries management. I think that the issue that we face mainly in North American markets is with buyers with company sourcing policies. It's not consumer level. I agree with what we're seeing in that consumer data and think that we should really take that to heart as we think about what MAFAC could do, biggest bang for buck. It's sourcing policies that are really determining what our market access is.

On the consumer level they want to see stories and part of that story is the actual practice on the ground or responsible supply chain talking about exactly where things come from, meeting the people involved, seeing things first hand, so that resonates with consumer and it tells a sustainability story, but having been at the -- from my meeting where this was discussed, the look on retailers faces is very

much that they have the obligation to make sure sustainability is covered. They believe their consumers think they are doing that for them and they want to make sure, if their challenged, there's a third party to defend them. They don't want that to be Trident Seafoods. They need that to be -- they've turned to an NGO, but I think in the North American market there's very much room for it being the government. That doesn't work in Germany. In some countries there's not respect for the government's assertion, but in North America we still have room for a government word and meaningful program to mean something.

So I urge that we look at the data that was shown and think about what John has said there's room for. My experience is that it would go a long way in U.S. markets. I just also wanted to speak to the concept of assessing in order to do promotion work. In the Alaska region we do assess ourselves and that's what funds ASME. That budget is industry funded. I don't know if people are aware of that. State funding has nearly been entirely cut from that program.

They also use MAP market access program funds, that's USDA programs for promoting exports in other countries. That's an important component of what they do, but that continues to be threatened.

So the assessment piece is what keeps ASME alive, in addition, there's authority in Alaska region for salmon producers to form regional associations where they choose to assess themselves. They vote in, they do that, and then they differentiate brand and market for themselves. And so, it's possible for those programs to be successful, but in the case where it's worked for us, it's been the idea of industry and it's been something that's really come from a small group where there's a common message.

MR. BELLE: Thank you, Roger, and I just want to ask probably an overly simple question to the panel, but in the case of NOAA's budget, what percentage of that budget would you guys recommend be used for the kinds of communication or education or marketing, whatever term you want to use, to try to allow the message



about sustainability and responsible managed to get through to both the buyer and, perhaps, indirectly through the buyers to the consuming public?

Then a second question is, you know, most seafood in this country is consumed in restaurants or food service institutions and one of the -- and so the public's interaction with seafood is often in those kinds of institutions, but as we all do, I think, in the seafood business, when you go to the restaurant, present company accepted, Roger -- you do a great job and we saw it in action last night, but you ask -- if somebody asks their server where the seafood comes from or whether it's sustainably grown or whatever, I mean the kinds of stories that are told are incredible, I mean, you couldn't make this stuff up. So is there a role for government to somehow help the restaurant or the culinary community and face that challenge. I recognize staff turnover is enormous. I recognize there's all sorts of complicated things there, you know, you suffer the same thing in the seafood market, right, in the seafood counter in a retail place.

A lot of times you ask a server at a retail counter and you get the same kind of issue there and probably, maybe, to a lesser extent than restaurants. I realize I'm offending my customers here, right, I'm offending the people who buy my product, but the reality is, is there a role for government to try and help those sectors that face that challenge?

MR. CONNELLY: It all depends, what does help mean? I think the National Restaurant Association might look at that and say, we've fought off things like menu labeling on calories, I'm not sure we want training of wait staff. Obviously, I don't think you think about that. There is a difference though in our culture of food service. Roger probably has professional waiters or wait staff and that's largely their career. It's more kind of a French or European model, maybe not that Roger, but you're typically not hiring the kid for the summer.

MR. BERKOWITZ: No, sometimes we do (inaudible) we spend a fair amount of money in training because, yes you do have those that are somewhat professional and will do it, you know,

on a multi-year basis, but we also have, you know, the transient folks coming through. So you have to make a conscious effort I think to spend the money there on that.

MR. CONNELLY: To your question about what percent of the budget, I leave that to Chris and others. It's more than it is now, I'll tell you that, because I will just say that there is not a manufacturing company in this, excuse me, in this country that could put a product out without a sales team. You just -- it makes no sense. I think, Lisa, I mean, Linda used an example of rolling out a product, but no one knows your product. It's just -- try to analogize it to a product.

MR. OLIVER: The -- and I don't know how much of our budget off hand it is, but, you know, based on some of the discussion that we were having earlier, if it really comes down to a dozen or so critical buyer nexus points, I don't need much of a budget to write a dozen or so one page letters. It might be better if they came from the secretary, but I'm certainly willing to do that.

MR. JONES: I'll be brief because Sebastian started to touch on where I was going, but the conversation has been very retail heavy and I was going to point out that one of the things the EDF has been involved in was developing a traceability program in the Gulf called Gulf Wild, post BP spill, and the commercial fisherman and the processors here are selling Gulf Wild at a premium per pound above things that don't have the Gulf Wild tag. The folks demanding them are chefs and we're in a period right now where some of the biggest celebrities in our nation are chefs and they are very highly credible messengers and you were talking about the chokepoints of where you could reach a few people that are credible messengers to carry this, you know, I think the approach to the National Restaurant Association would have to be nuanced, but we have a lot of chefs right now who are very informed and putting out the right message about U.S. Fisheries and we have a lot of chefs right now that are misinformed and doing harm and so I think there needs to be some time spent there on that group of messengers and

making sure they are pushing out the right information about U.S. Fisheries.

MR. BERKOWITZ: To your point, Robert, Sebastian and I were just talking a little earlier about really getting to the CIA's and the Johnson and Wills of the world because they will make the difference and they are the up and coming stars.

MR. JONES: Exactly and just as a follow up, I mean, look at the James Beard Foundation. They've gotten very involved. They're running the policy boot camps now and are kind of taking chefs and making them advocates on issues and this ought to be one of them.

MR. UPTON: Thanks. I'd be interested in what the panel could suggest in terms of kind of concrete proposals for what NOAA could be doing or just kind of different segments of the industry because what I heard is that there's a clear need for kind of a change in the paradigm and some really good information about what's already being done and then kind of consumer behavior, but when you think about kind of what NOAA's already doing and then also a lot of you

have different perspectives on kind of the industry's segments, I mean, how can people kind of contribute because I guess when I hear about a letter here or getting to somebody it doesn't seem like it's that sustainable. It seems that it needs to be more of a larger shift in strategy because that person who you write a letter to is going to change or there might be a new person kind of entering that market. So are there just kind of concrete things like next year that -- what's the kind of low hanging fruit that we could be working on?

MR. CONNELLY: I have six proposals. I thought that question might come. So and these will be somewhat repetitive things, but NOAA has a long history of actually working on the health benefit questions. Was it Spencer Garrett, Laurel, fellow down at Pascagulla Lab, was very instrumental in having the NIH do a study on the risks/benefits of seafood. He was also instrumental in getting FAO and WHO to work in that area and they did a kind of a groundbreaking study that talked about risks and benefits. So continuing to work in that area in partnership

with FDA is one.

Again, clearing off the problem of whether or not -- the second one, clearing off the problem of whether or not U.S. seafood is sustainable through things like an ongoing discussion and ongoing communications, not just the one letters to the CEO of a retailer at a restaurant chain et cetera, but this ongoing.

Third, would be defend the NOAA process when there are allegations that are unfounded. If there are problems with how we manage fisheries, own up to them, fix the problem, et cetera, but when the data or the process or the methodology used in the study is flawed, NOAA has the responsibility to call them out. As a science based organization NOAA has the responsibility to call them out.

Fourth, when seafood is deselected, a letter to a CEO is different than a letter to a buyer. Buyers typically change every two or three years in retail. The seafood buyer is going -- he's going to go buy toilet paper next week and he's going to buy electronics in two years after that, but a CEO sets the tone for the

company and if the CEO has to answer the question from Secretary Ross about why you're deselecting American seafood then that's a cultural issue within the company.

And the last issue, I would suggest is one of -- the U.S. has an excellent fisheries management system. There are four or five other countries like the U.S., New Zealand, Iceland, Norway, other countries that run rights based management, strong enforcement, strong science, et cetera. And often when I talk to those countries they say, well we're the only ones doing this or -- you know, I can't be the only one that's defending it and I think NOAA has an opportunity to work with likeminded agencies in other governments to present, there are a group of countries that do things well. In a group of countries that should be more closely coordinating their communication just like industry more closely coordinates, just like NGOs more closely coordinate. I think NOAA has an opportunity to do that also. So those would be concrete recommendations.

MS. CORNISH: For me I think NOAA has



existing infrastructure that you can take advantage of to tell your story. So some of those include the aquariums where you have science centers and so where you have partners with existing programs tell the additional overview story of what NOAA is doing because they get millions of visitors per year and so I'm not aware of all the different programs that you have and different institutions, but those, you know, are teaching different science about oceans that, I think, taking maybe a step back to tell the overall NOAA story and then those may have a lot of kids that go through the programs and so encourage them to also feel that it's important to eat more seafood and ask their parents to, you know, serve them more seafood.

We need to make seafood a social norm, a part of our culture. It's just not part of the eating culture here and so I think, yes we want to promote U.S. seafood, but at the overall category we want people to eat more sustainable seafood. So, yeah, those are two points for me.

MR. MARKENSON: If I can just add, I mean, with the data that I was showing there, I

mean, you ask what low hanging fruit might be, consumers don't feel knowledgeable on so many different aspects of seafood. They're not aware of -- there were six different claims, I think, you had up there. The awareness of those is very low and when we ask them if they want to know more, even the folks that aren't eating seafood want to know more. So, there's lots of low hanging fruit, I mean, it's almost like kind of pick something and, you know, maybe it's two times a week or whatever, but pick something and focus on it. I guess it as the sturgeon general guy, I don't know how many messages he had in his thing, but they're hungry for all of that. So there's lots of low hanging fruit I would say.

MR. BERKOWITZ: Laurel and then we'll go Richard and Sara. Richard.

MR. LAMADA: I guess I'd like to make the same analogy where restaurants kind of introduce people to seafood and then they become buyers and I represent the recreational fishery and I don't think these messages really has resonated to our industry, the nutritional value of the products that our guests are taking home

with them and I'm from Alaska, as well as the message that recreational fisheries is a sustainable fishery as well. I think a lot of our guests get introduced to fresh fish, you know, and go home and obviously, you know, become buyers in the commercial market for our fish and they also have that same lack of knowledge on how to prepare the fish. I think most lodges like myself, you know, provide cookbooks, but I don't think many operators have really taken advantage of the nutritional angle like it was presented today that a sport fishery could use as a marketing tool, you know. I think people just assume that the sport fishery, people come because of the excitement of catching fish, but the big segment, at least, the ones are my guess are consumptive recreational fisherman. They come up to eat fish, not just the sport of catching them.

So realizing if I had some materials that, you know, was on my website, you can click a button to get, you know, some information about how important fish is in your diet, I mean, that definitely would be another selling point for my

product and I think that's -- you know, we're a small sliver of the consumer base, but it is a -- no attention at all has been given to the nutritional value of the products that we have people, you know, spend thousands of dollars to come up and catch. That is definitely another sales through our association we could promote that ability -- if we had information to distribute, even if we had a little a card that we could give to every skipper to put on their dashboard or something. I think we could get that message out and make our guests become more avid consumers of seafood if they knew the nutritional value of it.

MS. CORNISH: So we have a number of free resources on [seafoodnutrition.org](http://seafoodnutrition.org). They are made to be simple one pagers or there's little cards as well. So feel free to review them and if there's some that you just want to tweak a little bit for the sports fisherman language, we're happy to help.

MR. CONNELLY: And I was struck by, Steve, your -- it was the first time I'd actually seen the question. I've seen a lot of research,

but it was the first time I've seen the question about going from restaurant to home and there's always this debate in the industry about that, is it -- can you actually get someone who has something nice at Roger's operation, but then they get so afraid, well that's a trained chef that did that at Legal and I'm afraid to do that at home. So I was kind of intrigued by that.

MR. BERKOWITZ: That's very interesting.

MR. CONNELLY: Roger, we understand that everyone should be coming to Legal every night, but --

MR. BERKOWITZ: They may not want to come back to work.

MS. MCDONALD: Sara McDonald. I have just two points I wanted to make. The first was touching on what Robert said. We work with -- at Seafood Watch, we work with celebrity chefs and when the Magnuson Stevens Act was up for reauthorization and there was a lot of concern about major changes being made, we did work with celebrity chefs and we brought them to D.C. to talk to their various representatives and a lot

of these chefs are not in coastal states. They are in interior states, so it's something that I know the agency can't lobby, but it is something that other folks can use their relationships to lobby.

The second point I wanted to make and it's something that we do actually talk about at Seafood Watch is that the U.S. fisheries management isn't just about Magnuson Stevens, the U.S. has the Endangered Species Act. The U.S. has the Marine Mammal Protection Act and it has Magnuson Stevens and all of these collectively together, they all speak to each other, they all sort of cross pollinate each other somewhere in my protected resources person's hat, but that's some of the things that make the seafood sustainable in this country is because we have lots of -- we do have regulations that speak to all of the ecosystem not just the actual fish swimming in the water at the same time.

MR. BERKOWITZ: I'm still haunted by the fact that Linda and Steve, you've pointed out, that 90 percent of consumers don't -- potential consumers don't eat seafood. We're

only reaching 10 percent and as so, going back and I'm hearing what you're saying, John, about yes we understand the industry is really fragmented in terms of the different kinds of species, the different kinds of gear people are using, but wouldn't there be a benefit of a national board promoting seafood consumption in general and, you know, going back to the old (inaudible), a rising (inaudible) all boats.

MR. CONNELLY: I was not here during this scarred -- just to put a little perspective on this thing, the Sturgeon General was in the mid 80s as was described and ended in 1991. In around 1999 or 2000, before I came to the industry, there was another effort to put on a check-off program and from the industry perspective it absolutely split the industry. So there were those people that were strong proponents of this and then another organization actually was formed to defeat the check-off vote. So that is how diverse the industry is. So it was a very, very contentious issue. I came -- I might have my job because of that because it failed under the other guy, I mean, I don't know,

all I know is I dodge that question and I continue to get a paycheck. But it was a very, very scarring experience within the industry and so what we have done as an organization.

You asked what NFI has done, rather than having a national seafood industry effort, we have sectors within the industry, within our membership, that organize themselves to do marketing. The shrimp sector, the salmon sector, but the wild and farm sector work together in that area, the tuna sector, the sushi sector's looking at some things, and marketing for them can mean, not just promotion, it's not putting out an ad, but marketing the area of sushi could be -- when Oceana does their reports about fraud, they go to a sushi restaurant and pick up white tuna, well if you buy white tuna, a 100 percent of it is mislabeled. I could do a study like that because there is no such thing as white tuna, okay, so when you label it white tuna it's 100 percent mislabeled. So you can skew any sample like that. So we have asked the sushi industry to get together. Marketing in that sense is not promotion, but it is actually



cleaning up the activities within that sector, not at the distributor level, but at the ethnic sushi level to get them to look at their menus, et cetera. So that's the -- the sectors might be a better approach than an overall industry effort.

MR. BERKOWITZ: Any other thoughts or comments? Go ahead, Sebastian, sorry. Alright Sebastian and then Joe.

MR. BELLE: So obviously to the panelist you, I'm sure realize, that we at MAFAC are struggling with what, if any, recommendations we should make to the agency to try and grapple with this problem and we've heard a pretty diverse discussion here and we've heard some concrete suggestions from you folks that I think are helpful, but I still am struggling to find the one thing, if you will, that NOAA can do that's going to move the needle. I get the, you know, I think, John, your series of six suggestions make a lot of sense and in many ways many of those, I think, NOAA should be doing anyway as part of just normal operations. It's not something that they should have to be told to

do, but I do, and I'm a bit with Roger on this, you know, you've got 90 percent of the public out there that aren't consuming the product that we're handling and yet there's a lot of public debate about whether or not our product is good or bad. There's got to be a good way to go at this and I just am not hearing kind of the clear pathway. Maybe there isn't a clear pathway, I don't know.

Let me ask you this and this is really more targeted at you, John, than anybody, is there a way that the sector approach could reflect itself in a government structure, in a government entity. I -- personally I'm not convinced that governing agencies are great at marketing. I just -- I think they often are super well intentioned, but just don't necessarily do a great job because it's not their world, so the NFI approach, I think, makes a lot of sense in an institution like NFI, but I guess my question, if I'm not being clear here, is what is it that NOAA could do that would help NFIs and the individual, you know, the restaurant association, some of the other food marketing

institute type institutions to kind of be a force multiplier for the efforts that they are doing themselves. Are there things that NOAA could be doing to help in that regard?

MR. CONNELLY: Obviously, NOAA is bound by the laws that regulate you, I mean, we heard that very clearly during the 1:00 presentation. So you can't recommend -- I guess you can recommend, but NOAA has to always go back to Legal to say, can we do this within the framework under the laws that regulate our activities. So if the laws are -- if industry looks at the laws to create marketing counsels as too burdensome, that's not NOAA's problem, that's a congressional problem. So, and I would tell you that when industry looks and says, okay we're going to collect the money -- we're going to vote. We're going to go through that fight. Then we're going to collect the money, so we're going to tax ourselves, then we have to have someone in Silver Spring tell us whether or not we have a good marketing plan? You know, I don't think anyone in the building is a marketing expert, like Roger Berkowitz or Steve's members. I mean, it's just

not what you do. You have other expertise. So industry sometimes looks and says, this is just goofy. I got to collect the money and I'm going to have a government person tell me whether or not my marketing plan makes sense? So that's one of the problems with how that's structured. That's not NOAA's problem though, that's -- congress defined how these things will operate.

So our wish would be that NOAA gets rid of the -- the kind of the Hippocratic oath type of thing, just do no harm, not do no harm, but make sure that others are not seeing harm being done to our oceans because of the work that NOAA does and other members of the federal family on other laws et cetera. So, Sebastian, if this were easy, if there were a silver bullet, trust me, it would have been done a long time ago.

MR. BERKOWITZ: Joe?

MR. SCHUMACKER: Thank you, Roger, and thank you to the panel. This has just been an extraordinary conversation. I've really enjoyed it. For those of you that do know and those who don't, I work with tribal fisheries and talk about misinformation. So we deal with this often

and we always deal with messaging and information coming out to defend our product, to make sure that that product -- people understand how it's caught and is sustainable in a responsible way. If I could send a message with every fish that we sell out there, you know, that'd be great, obviously, to get that message out there.

What we're finding now is that we need to modify it constantly. We're constantly reacting to something new that's popping up there and on the radar and so it has to be flexible in that regard and so, you know, I just want to stress the issue that, you know, the work that Laurel's done in Fish Watch and other things that are out there, that great information out there, it's not easily accessible right now and I think that's something that could be worked on for products and for getting messaging out about sustainability of these resources, but it is something that could be accessed if there were something like a QR code or something like that, you know, where you could just take a picture of it with your phone and get that story and that leaves the ability to easily modify it, you know,

to react to the latest information on it that might be of importance to people as well.

For me, the most recent example for us is Shinook salmon that we catch out of our rivers up there in the Northwest and we're now -- we have very well intentioned chefs that are now serving Shinook salmon in their restaurants up there now because they maybe -- those salmon feed southern resident killer whales and that population is severely endangered. These are salmon that we caught in our rivers. They will never feed a killer whale. They've come out of the ocean into a river. So we have to defend these types of messages constantly and so we've lost markets. We've lost markets overnight this year just because of that kind of misinformation that occurs and it's just an example, but it shows how flexible you've got to be when you start thinking about this messaging process that we're talking about. I thank you all.

MS. VALEZ: Hi, Donna Valez. I have a question for, John. Were you saying that currently U.S. seafood is labeled in the grocery store? Were you saying something about labeling?

MR. CONNELLY: I didn't say anything about labeling. I can talk a little bit about COO and Steve had some stuff in his presentation about people wonder about country or origin and a fair bit of seafood in the U.S. is already labeled if it's not processed, if it's a commodity product it's labeled as to the country of origin and it's method of production. So when you go to the seafood counter you'll see something, as long as the store has sales of, I think, over \$250,000, it falls into this law, so it has to say product of Vietnam farm raised or product of U.S. wild pop, but that's a USDA country of origin labeling. Did that answer your question?

MS. VALEZ: It's not like universally, like you go and you don't see anything marked like U.S. caught seafood?

MR. CONNELLY: I'm sorry. I think Chris was suggesting that if --

MS. VALEZ: You were suggesting that. Somebody was suggesting that so why couldn't you say, NOAA U.S. certified, U.S. caught seafood on every single label of U.S. seafood because

consumers would buy that, like I would go in the store and I would buy U.S. seafood, but I don't see that, so I'm just asking from a simple, easy -- I mean, you could put it on your menus, you could just put it everywhere like buy U.S. We do that for other products.

MR. OLIVER: That issue has been raised before. I've heard it years ago and again last year we talked about it to some extent, John, and I've kind of frankly -- there are some pros and cons to it and it's not that simple, but I'm certainly not opposed to pursuing that kind of idea. I'd like to hear some thoughts from some of the folks in the room that deal with the existing NFC and other certification programs and to what extent government labeling program if we were able to clear the necessary hurdles to do that, how those would (inaudible).

MS. VAN VORHEES: When committee discussion started on these topics we talked about how to ensure consumers have confidence in U.S. seafood and I think in that sense that there's a real role for NOAA to produce material that others can echo, so marketing strategies,



brands, and communication that's going to be done anyway to have good information that we can point to from a credible source I think would be useful and is an efficient way to get messages out using other people's money.

We also talked about the need for more promotion, marketing development, and, Roger, I know you've been supportive of discussion about SK. It's why I've been interested in more discussion of SK. That is a funding source that does have within its authority and scope and purpose doing this kind of work and it does compliment industry trying to come up with a good idea and competing for those funds and using it as efficiently as possible.

So if there were more money available with increase in duties to support that, I think that's one solution that is cheap and quick. I'm interested in John's thoughts on third party advice. NOAA hasn't aggressively looked at that and looked at the scientific integrity of it. We choose to participate in third party standard setting organizations primarily because we actually want to protect the integrity of the

regional management counsel process and research priorities and management objectives being set with that public input, with that local input. Not having third parties and an international forum set those for us and then having to take limited budget resources and stretch them thin to meet those objectives.

So, John, you have a lot of experience in these third parties, is there anything there in terms of consumer confidence or ensuring that we're protecting the priorities to ensure long term good management the NMFS folks should be thinking about.

MR. CONNELLY: How much time do we have? Very quickly, if I calculated the number correctly and I was sitting in the back and I have terrible eyesight, I think on marketing going to SK, I think it was about 1.02 million that goes to marketing related grants. How big is the SK program total? How many grants overall?

GROUP: About 10 million.

MR. CONNELLY: So about 10 percent goes to marketing, so as you think about that is that

the right balance? That's for NOAA to decide, but if you have an opinion in this committee, again 10 percent seems a relatively low number and you might ask staff to actually run historically what's been the number. So that's one thought on the SK money and on the third party issue, I was on the MSC board for about eight years. MSC is a requirement in northern Europe. It's just -- to get into the market in northern Europe you needed -- you can agree with it or disagree with it, but that's the requirement and the reason I keep coming back to NOAA's communication though is if NOAA were aggressive in the area of communication and communicating to the buyers and others that fisheries are well managed and if they did that with New Zealand and if they did that with Norway and they did that with Iceland, people would have greater confidence that a fair bit of seafood caught, processed, and sold in North America comes from sustainable sources and the question of third party certification, there's going to be a group of people that like the certification and there's going to be a lot of people that

ultimately go to Steve's members.

Steve's members are the absolute gatekeeper on retail and, Roger, you and your peers are the gatekeepers on restaurant food service and that is who they trust. My wife -- the average person, even MSC's data says, the average person is first going to trust the brand that they go to time after time at retail or food service to say I trust, I had a good experience, they treated me well, it was a good quality product at a fair price, I'll go back to them. It's not the logo that they first seek.

MR. OKONIEWSKI: I just googled up sustainable fish. Out of 14 items on there, I don't see NMFS in there anywhere and maybe that's just the wrong combination, but that's the way it comes up, but the ones that do are Monterrey Bay, Seafood Watch, Oceana, MSC is right at the top, World Watch NRDC, Wikipedia, but I would have thought and, you know, I get on NMFS or the websites quite a bit and I would have thought -- I never done this before, but it's kind of telling I guess, to me anyway. So how we get there is, I guess, what it's all about, so.

MR. ESPINEZA: Thank you, Roger. Rai Espineza. I think we mentioned this before that NOAA has a, you know, many grants and you put out grants and so this is a way that you could integrate marketing into some of this. There's a lot of grants that go out to promote U.S. seafood, sustainable catch, however, sometimes you have to incorporate education and outreach is part of the grant. So it might be a good idea to integrate a marketing aspect into the grant already since that's what you do with other things. So that's a way to build it into some of the things you're already putting out.

And Chris mentioned -- he mentioned how we can do this. How we can use NOAA products already, so for example, Fish Watch, swordfish for example, you guys have a really nice page on swordfish about how it's managed and why it's sustainable and this is something, for example, in the U.S. Caribbean we've been using to assist local fisherman to get the (inaudible) permit so they can catch the swordfish, which are totally underutilized, under caught, and again sustainably managed as Fish Watch states. And it

is something that is very useful for us because when we're looking to help out local fisherman to get that market, it's not me telling then and it's like -- how do you know that? Are you under water? Have been you been doing these studies? It's like I haven't had to do the studies because NOAA does and so they have them. So actually it does help us out that you guys have a Fish Watch that's kind of standalone. It doesn't have everybody else's -- it doesn't have my logo on it. It doesn't have their logo on it. So it's you guys, so other folks do trust that. So it's one of those things that has helped the market and when we began to see and to show other folks, listen this is something that, while it's not an official certification program, it is something that's already occurring as part of the fisheries operation and so it's helped us to begin to create a local swordfish market for seasonal fisherman.

So this is something that I think continuing the Fish Watch, expanding its reach, again through social media and, you know, other marketing aspects could really benefit the

industry.

MR. BERKOWITZ: Well thank you on behalf of my coach here, Sebastian, and all of us at MAFAC. I want to thank you, John, Linda, and Steve for really an enlightening panel and helping us as we try to weigh through this, so thank you very much.

CHAIR FELLER: So our next item on the agenda is public comment, so do we have anybody here in the room who wants to make a public comment? That's a no. Is there anyone on the conference line who wants to make a public comment?

MS. DAVIS: No one on the conference line.

CHAIR FELLER: Okay well that made that easy. So we have the afternoon set aside for some subcommittee business. What I'd love to do is if we could just take a quick ten minute break -- and then -- yeah, Heidi?

MS. LOVETT: I just wanted folks to know, besides the commerce committee, which will be meeting to continue the conversation, the recreational fishery subcommittee --

CHAIR FELLER: Can I stop you and come right back to that?

MS. LOVETT: Okay.

CHAIR FELLER: I want to take a ten minute break and then come back and go over what the different subcommittee meetings are just before we kick off because there's some stuff that I think we need to talk about that we talked about in the strategic planning subcommittee in terms of coordinating. So if I can get you guys to come back here in about ten minutes, 3:50, then we can sort of cover what Heidi was going to tell you and I think protected resources and a few other things. Okay, thanks.

(Whereupon, at 3:40 p.m., the

PROCEEDINGS were adjourned.)

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I, Carleton J. Anderson, III, notary public in and for the Commonwealth of Virginia, do hereby certify that the forgoing PROCEEDING was duly recorded and thereafter reduced to print under my direction; that the witnesses were sworn to tell the truth under penalty of perjury; that said transcript is a true record of the testimony given by witnesses; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this proceeding was called; and, furthermore, that I am not a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

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